

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/314219152>

18. Use of Habitat and Viability Models in Martes Conservation and Restoration: A New Synthesis

Chapter · January 2017

DOI: 10.7591/9780801466076-021

CITATIONS

4

READS

228

3 authors, including:



Wayne Duard Spencer

Conservation Biology Institute

43 PUBLICATIONS 2,204 CITATIONS

SEE PROFILE

<cn>Chapter 18

<ct>Use of Habitat and Viability Models in *Martes* Conservation and Restoration

<cau>Carlos Carroll, Wayne D. Spencer, and Jeffrey C. Lewis

<A>Abstract

<txf>Conservation and management of *Martes* populations are increasingly informed by quantitative models that predict habitat suitability and population viability. Recent modeling efforts to support fisher (*Martes pennanti*) reintroduction planning in the state of Washington and conservation of an isolated fisher population in the southern Sierra Nevada (California, USA) have integrated results from empirical static habitat models, such as resource-selection functions, with those from dynamic population-viability and vegetation models. Additional methods have been developed to identify habitat linkages with potential importance for maintaining interpopulation dispersal. While such modeling frameworks can be useful in integrating data on species distribution, demography, and vegetation response to disturbance, the associated increased data requirements may also increase uncertainty regarding model projections to different places or times. The costs associated with reintroductions generally justify the use of such models to inform the planning process before substantial resources are committed. Given the challenges posed by increasing human demands on forest ecosystems, well-constructed quantitative models can be key tools for enhancing the success of wildlife conservation efforts, as long as model uncertainty is considered explicitly, and model results are used for informing decisions rather than predicting outcomes.

<A>Introduction

Conservation and management of *Martes* populations are increasingly informed by quantitative models that predict habitat suitability and population viability. Statistical models of habitat relations can help increase understanding of the factors limiting a species' distribution, facilitate protection and enhancement of habitat, predict distribution in unsurveyed areas, and evaluate suitability of currently unoccupied areas for reintroduction. More complex population-viability models that integrate data on habitat and demography are also increasingly employed to evaluate the effects of alternative management options on population persistence.

Like many carnivores, North American *Martes* species (American marten [*M. americana*], and fisher [*M. pennanti*]) have undergone range contractions since European settlement (Krohn, this volume). Although both species retain large populations over much of their historical ranges, several regional subpopulations are of conservation concern (Krohn, this volume). Whereas overexploitation was a primary factor contributing to range contractions historically, current threats stem primarily from widespread habitat alteration due to intensive forestry and other factors (I.D. Thompson et al., this volume). Thus, conservation and management of existing populations may involve evaluation of both local- and regional-scale habitat suitability (Shirk et al., this volume). Planning at broader spatial scales may involve development of quantitative habitat suitability models from geographically extensive data, such as satellite imagery (Carroll et al. 1999; Spencer et al. 2011; Marcot and Raphael, this volume).

To reverse range contractions stemming from historical overexploitation, American martens and fishers have been translocated to many areas (Drew et al. 2003; Powell et al., this volume). Although early reintroductions often were based on qualitative assessments of the availability of suitable habitat, more recent efforts have typically involved quantitative modeling of habitat suitability (Lewis and Hayes 2004; Callas and Figura 2008). Reintroductions,

especially in eastern North America, have frequently been successful in establishing populations (Aubry and Lewis 2003; Powell et al., this volume). However, at least 2 aspects of the demography and habitat associations of North American *Martes* species may create challenges for both reintroduction and conservation of small populations (Powell et al., this volume). *Martes* species generally have relatively large territory sizes for their body mass (Powell and Zielinski 1994). Additionally, dispersal ability for the majority of species may be limited by their association with forest habitats (Powell and Zielinski 1994).

In this chapter, we review the types of habitat and viability models that have been used to guide conservation efforts for North American *Martes* species (Table 18.1). The types of habitat and viability models reviewed here fall into 4 distinct categories based on their output predictions: distribution, dispersal, persistence, and optimal reserves (Table 18.1). Each type of model can be characterized by its data structure (i.e., types of input and output data), treatment of uncertainty, and context in the planning process. We present 2 case studies for the fisher in western North America that provide guidelines for choosing and applying appropriate modeling tools, and may be useful for *Martes* conservation efforts in other regions. Such planning tools are particularly relevant for the fisher, which in 2004 was classified as “warranted but precluded” from listing as a threatened species under the U.S. Endangered Species Act (U.S. Fish and Wildlife Service 2004). This finding has motivated land-management agencies to evaluate important habitat areas for the species in the Pacific coastal states and provinces (Lofroth et al. 2011).

<insert Table 18.1 near here>

<A>Models of Distribution and Resource Selection

The first habitat models used to inform *Martes* reintroduction efforts were conceptual models such as the Habitat Suitability Index (HSI), that allowed expert opinion on the value of various habitat types to be expressed formally as a quantitative index (Allen 1983). The maximum value in Allen's (1983) fisher HSI model occurs when canopy closure is >75%, mean diameter at breast height (dbh) of overstory trees is >40 cm, 3 or more tree species are present in the canopy, and 10–50% of the overstory is deciduous. Thomasma et al. (1991) used Allen's (1983) model to inform a fisher reintroduction effort in the Upper Peninsula of Michigan. A comparison of the HSI model predictions with snow-tracking data revealed that, although the composite HSI score was a significant predictor of fisher habitat use, only 2 of the 4 component variables (mean dbh of overstory trees and percentage of overstory deciduous trees) were significant in the multivariate model. In addition, the shape of the response function was not monotonically increasing, but multimodal (Thomasma et al. 1991). In the last 2 decades, habitat-suitability models derived from statistical analysis of distributional datasets have increasingly supplanted the use of conceptual models. When applied in the context of broad-scale planning, wildlife-distribution models typically require input of presence-absence data (derived from systematic regional surveys or compiled from nonsystematic surveys) measured at the patch or site scale, and environmental covariates mapped across the landscape using a geographic information system (GIS). Uncertainty of a single model is assessed using standard metrics (McCullagh and Nelder 1989), whereas uncertainty inherent in the model-selection process is addressed using model averaging (Burnham and Anderson 2002). The robustness of distribution models can be assessed by using cross-validation techniques (McCullagh and Nelder 1989) or by testing against new data (Carroll et al. 1999). Distribution models play a key role in the planning process both as a tool to identify priority habitats and as input to more complex models (Table

18.1).

Distribution models are commonly based on a form of generalized linear model (GLM) such as logistic regression, which models the relations between a binary response variable (e.g., presence-absence) and environmental covariates (McCullagh and Nelder 1989) (Table 18.1). Generalized additive models (GAM) resemble GLMs, but allow more flexibility in the form of the relations between the response variable and the covariates (Hastie and Tibshirani 1990). Logistic regression and other GLMs are often used to fit resource selection functions (RSFs), which are defined as models that yield values proportional to the probability of use of a resource unit (Boyce et al. 2002). For example, RSFs have been used to model fisher habitat relations in California (Carroll et al. 1999; Davis et al. 2007; Spencer et al. 2011), the Rocky Mountain region (Carroll et al. 2001), and British Columbia (Weir and Harestad 2003) at a range of spatial scales. Models derived from radiotelemetry data were applied to a 1500 km² study area (Weir and Harestad 2003), whereas those derived from “found” data (compilations of nonsystematic surveys; Carroll et al. 2001) or regional presence/absence surveys (Davis et al. 2007) were applied at the scale of states or provinces.

A limitation of presence/absence data is that observed nondetections can be attributed either to the true absence of the species or to failure of the survey protocol to detect a species that is present (false or sampling absence). Recently developed methods for occupancy modeling, which allow adjustment for incomplete detection, can increase the generality of models built from presence/absence data (MacKenzie et al. 2006; Slauson et al., this volume). Additionally, absence from a site may be due to factors such as barriers to dispersal, or local extirpation caused by predation or disease. Alternative modeling methods, such as Maxent (Phillips and Dudik 2008), that compare sites with presence to all available sites may be used when absence data is

unavailable (e.g., for observational data).

Another limitation of typical RSF modeling techniques is that species distribution data often exhibit spatial structure caused by unmeasured environmental factors and population processes (e.g., dispersal, territoriality) that may result in aggregated distributions of individuals (Beale et al. 2010). If ignored, such spatial structure may lead to models that include spurious covariates and have poor predictive power (Beale et al. 2010). Spatial structure may be incorporated into a distribution model by addition of either a spatially structured covariate or an error term (Beale et al. 2010). The GAM developed by Davis et al. (2007) to model fisher habitat suitability in California incorporated a simple autoregressive term that estimated spatial effects through an additional covariate on the basis of observed presence-absence values at neighboring sites within a spatial neighborhood.

Rather than adding spatial structure as a covariate, Carroll et al. (2010) used a hierarchical Bayesian model to incorporate a spatial random effect term (ρ [rho]), which is estimated by means of an intrinsic conditional autoregressive (ICAR) model in which each spatial effect has a Gaussian distribution centered on the mean of the neighboring values (Latimer et al. 2006). ICAR models simultaneously produce estimates of the effects of environmental variables and spatial random effects, allowing the data to determine the best placement of spatial effects (Carroll et al. 2010). This approach also provides better estimation where response data are missing than is possible with simple autoregressive methods. If the spatial random effect is due primarily to population processes, such as dispersal limitation, evaluating predicted distribution without the spatial term can help identify areas that still contain suitable habitat, but from which a species has been extirpated as a result of historical overexploitation. In Carroll et al.'s (2010) model, predictions that include the spatial effect term

highlighted areas currently occupied by fishers in northwestern California and the southern Sierra Nevada. Predictions evaluated without the spatial term identified an additional area in the northern Sierra Nevada (Figure 18.1a).

<insert Figure 18.1 near here>

<txt>A fisher reintroduction project currently (2011) under way in the northern Sierra Nevada near the potential reintroduction area identified above offers an example of the ability of distribution models to inform restoration efforts (Callas and Figura 2008). The reintroduction feasibility analysis compared predictions from a conceptual model, a GLM-based RSF model, and the spatial GAM model of Davis et al. (2007) to determine which portions of the proposed reintroduction area contained habitat most likely to support a fisher population. All 3 models generally agreed about which sites within the 1500-km² analysis area had the highest quality habitat (Callas and Figura 2008); however, even the best habitat within the analysis area was predicted to be of lower suitability than currently occupied areas elsewhere in the region.

Although distribution models can provide useful guidance during the planning stages, reintroduction efforts are ultimately limited by practical constraints. For example, fishers were reintroduced to the northern Sierra Nevada onto industrial timberlands, where logistical and financial support was available (partly because of incentives for industrial timber companies to avoid listing of the species and attendant regulatory restrictions), rather than onto adjacent public forestlands with higher predicted suitability. The reintroduction provided an opportunity to test whether the contrast between modeled habitat suitability and current fisher distribution in the northern Sierra Nevada is due primarily to dispersal limitation or to the effects of unmeasured environmental variables such as forest type, prey abundance, or the presence and abundance of competitors and predators. Persistence of fishers in the northern Sierra Nevada, especially in

areas predicted to provide high-quality habitat, would support hypotheses attributing their previous absence to historical extirpation. Conversely, if fishers do not persist or occupy atypical habitats, this would support hypotheses attributing their absence to lack of key habitat requirements that may be poorly represented in existing models.

<A>Models of Habitat and Population Connectivity

<txt>Planners often wish to identify not only highly suitable habitat but also “habitat linkages” that may facilitate natural recolonization of suitable but unoccupied habitat without costly reintroductions. Models that predict dispersal or population connectivity often use distribution models as input (Table 18.1). This assumes that the habitat attributes that allow occupancy of an area will also facilitate dispersal. Connectivity analysis methods also make implicit assumptions about the movement process itself (McRae et al. 2008, Carroll et al. 2011). Although this model-based uncertainty is difficult to quantify, testing against genetic data can increase confidence in the predictions of habitat-based connectivity models (Schwartz et al., this volume).

Least-cost-path models are the most widely applied linkage-mapping method, in part because they are computationally simple and commonly available in GIS software (Singleton et al. 2002). The least-cost path can be modeled as a combination of the attraction to preferred habitats minus energetic and security costs (e.g., due to topography and exposure to roads, respectively) (Beier et al. 2008). Because habitat quality is expressed as the relative cost or distance to traverse a site, least-cost-path methods are equivalently termed shortest-path analyses. One limitation to early applications of the shortest-path method was that the single path identified might have the least total cost-distance but be unrealistic biologically (e.g., if segments

of the path traversed developed areas). More recent applications of shortest-path analyses to coarse-scale planning problems have broadened the focus to identify a set of near-optimal paths rather than a single path (Theobald 2006; Beier et al. 2008).

Current-flow models, which are based on the design of electrical circuits, are similar in concept to shortest-path models but have a greater capacity to identify the contributions of multiple linkages (McRae et al. 2008; Newman 2010). These methods treat landscapes as conductive surfaces (i.e., networks of nodes connected by resistors) and represent individuals as random walkers that choose to move along edges at probabilities proportional to edge weights. Because the importance of any 1 linkage in a network is affected by the availability of alternative pathways, a change in 1 portion of the landscape affects the inferred importance of all others.

Although both shortest-path and current-flow models are most commonly used to map linkages between a single pair of patches, centrality metrics can also be used to map linkages across the landscape. Centrality metrics consider the role of a node (i.e., a patch or site) in mediating flow between all other nodes in the landscape (i.e., as “gatekeepers” for functional connectivity) (Borgatti 2005). Because centrality metrics reflect potential linkages between all node pairs, they avoid the necessity for *a priori* identification of corridor endpoints. For example, “shortest-path betweenness-centrality” identifies the 1 or several shortest paths that connect each pair of nodes on a graph, and counts the number of such shortest paths in which a node participates (Newman 2010). The loss of a node lying on a large proportion of the shortest paths in the network would disproportionately lengthen distances or transit times between nodes. Like shortest-path corridor-mapping methods, shortest-path betweenness-centrality methods are based on the assumption that the dispersing individual has complete knowledge of the landscape and will choose optimal paths (Freeman 1977). Current-flow (or random-walk) betweenness-

centrality assesses the centrality of a node by how often, summed over all node pairs, the node is traversed by a random walk between 2 other nodes (Newman 2010). Thus, this metric counts all paths between nodes, not just the shortest, and is analogous to the behavior of electrical flow in circuits (McRae et al. 2008).

To demonstrate the type of information provided by shortest-path and current-flow betweenness-centralities, we applied these metrics to analyze habitat connectivity for the fisher in California using the Connectivity Analysis Toolkit software (Carroll 2010, Carroll et al. 2011). The input habitat data were based on predicted fisher habitat suitability without the spatial-effect term from Carroll et al. (2010). Shortest-path betweenness-centrality identified a skeletal network of linkages connecting the range of the fisher in California, with a key linkage area connecting northwestern California to the northern Sierra Nevada (Figure 18.1b). Current-flow betweenness-centrality identified a “pinchpoint” of high centrality from the northern Sierra Nevada reintroduction area southward to currently occupied range in the southern Sierra Nevada (Figure 18.1b). This highlights the complementarity of shortest-path betweenness-centrality, which maps a complete network throughout both core and peripheral areas, and current-flow betweenness-centrality, which highlights only the areas where connectivity is important but challenging to maintain. The general outlines of the linkage are not surprising, given that fisher habitat in the Sierra Nevada lies primarily in a restricted band of mid-elevation forest along the western slope of the range (Spencer et al. 2011). The finer-scale pattern of current flow may be useful for establishing conservation priorities within the mid-elevation zone.

When interpreting current-flow output, planners should note that areas with high current values represent pinchpoints of constrained connectivity (i.e., the best among limited options) and not necessarily highly suitable habitat. Such habitat-based linkage maps should be seen as

hypotheses to be tested using empirical data on dispersal movements and genetic population structure (Schwartz et al., this volume). Alternatively, a graph network constructed using genetic distances can be tested against habitat data; for example, Garroway et al. (2008) constructed a graph based on genetic data from Ontario fishers. The authors found that node-centrality was negatively related to both the proportion of immigrants in a node and snow depth, suggesting that central nodes were demographic sources located in areas with favorable snow conditions.

<A>Spatially Implicit Dynamic Models

<txt>In the 1990s, the legal and policy debate over the northern spotted owl (*Strix occidentalis caurina*) focused attention on the effects of demographic and environmental stochasticity on long-term population viability (Lamberson et al. 1994). Static habitat-suitability models, such as those described above, may identify factors that affect viability deterministically (e.g., habitat loss), but typically do not provide information on viability thresholds below which a small population may go extinct due to stochastic factors, even when suitable habitat is available (Caughley 1994).

Nonspatial and spatially implicit population-viability models analyze such stochastic factors by combining demographic parameters with simplified representations of landscape pattern and structure (Lamberson et al. 1994). Although fishers and martens are relatively well-studied compared with most vertebrate species, demographic parameters in such models must often be estimated using data from other regions or with educated guesses. Nonetheless, nonspatial viability models assist planners by exploring the behavior of small populations and deriving conclusions that may be generalizable to other regions and contexts (Powell et al., this volume). For example, Lacy and Clark (1993) used VORTEX software to generate insights

about viability thresholds for small marten populations. VORTEX can incorporate information on carrying capacity and patch isolation derived from the mapped distribution of available habitat, but lacks the topological information (e.g., patch shape) contained in spatially explicit population models (Lacy et al. 2005).

Schneider and Yodzis (1994) developed a pseudospacial model for Newfoundland martens (*M. a. atrata*) that used the concept of “optimum territory size” to evaluate the potential influences of spatial dynamics (i.e., habitat quality and heterogeneity) on energy balance and reproductive output. As prey abundance and/ or habitat area decreased, martens in the model increased their territory sizes and associated energy costs, resulting in lower fecundity. Scenarios of population extinction resulted from both deterministic factors (e.g., negative growth rate, habitat loss) and stochastic risks to marginally viable populations. These results confirmed those from earlier nonspatial models (Lacy and Clark 1993), providing a means of linking changes in habitat area and pattern to demographic parameters. A subsequent spatially explicit model predicted marten distribution and viability under varying habitat scenarios (Schneider 1997).

<A>Spatially Explicit Dynamic Population Models

<txt>Spatially explicit population models (SEPMs) are a class of simulation models that are both individual based and capable of retaining spatially explicit information on available habitat conditions (DeAngelis and Gross 1992). These models track the fates of many individuals through time as they move across a grid of cells, age, reproduce, and die. The behavior of large numbers of individuals collectively determines the aggregate characteristics that form the model output. SEPMs span a range of complexity, depending on the degree of biological realism and number of demographic parameters they incorporate. Model output may include the mean

population size, mean time to extinction, or the percentage of suitable habitat occupied. Because these models can incorporate habitat-specific demographic parameters, the development of SEPMs has allowed data gathered from intensive demographic studies to be combined with GIS maps of landscape composition and pattern in dynamic models (Murphy and Noon 1992).

PATCH, the SEPM used in both the case studies presented below (Lewis and Hayes 2004; Spencer et al. 2011), links the survival and fecundity of individuals or groups of animals to GIS data on mortality risk and habitat productivity at the scale of an individual or pack territory (Schumaker et al. 2004). Territories are allocated by intersecting the GIS data with an array of hexagonal cells. The different habitat types in the GIS maps are assigned weights based on the relative levels of fecundity and survival expected in those habitat types. Base survival and reproductive rates, derived from published field studies, are then supplied to the model as a population projection matrix. Data are rarely sufficient to build empirical models of the relations between habitat and demography; thus, these steps typically involve subjective judgments whose effect should be evaluated with sensitivity analyses. The model scales these base matrix values using the habitat weights within each hexagon, with lower means translating into lower survival rates or reproductive output. Each individual in the population is tracked through a yearly cycle of survival, fecundity, and dispersal events. Adult organisms are classified as either territorial or floaters. The movement of territorial individuals is governed by a parameter for site fidelity, but floaters must always search for available breeding sites. Movement decisions use a directed random walk that combines varying proportions of randomness, correlation, and attraction to higher quality habitat (Schumaker et al. 2004). HEXSIM, the successor to PATCH, provides additional analytical capabilities (www.hexsim.net; Heinrichs et al. 2010).

Parameterizing SEPMs requires the input of both predictions from a distribution model

(habitat maps) and data on demographic rates (e.g., survival and fecundity in different habitat types). Although uncertainty in such models is difficult to quantify because of the large number of parameters involved, sensitivity analysis can be used to evaluate the robustness of model output to variation in input parameters (Spencer et al. 2011). If SEPM results are considered in the proper context, they have the potential to offer insights into both spatial and nonspatial factors that might influence the success of reintroduction and other conservation efforts. For example, SEPMs, like RSF models, may suggest which areas hold habitat that can support reintroduced populations and, like VORTEX, may suggest the minimum number of individuals to release to ensure a high probability of reintroduction success (Carroll et al. 2003b).

Case Study 1: Using a Dynamic Population Model to Evaluate the Feasibility of Reintroducing Fishers to Washington State

<txt>The feasibility assessment preceding the recent fisher reintroduction in Washington state provides an example of the use of SEPM (Lewis and Hayes 2004). A conceptual habitat model was developed to map potentially suitable habitat throughout the Olympic Peninsula and Cascade Range in western Washington, USA; both regions were within the historical range of the fisher and still supported extensive areas of late-successional conifer forests (Figure 18.2). Because the fisher was extirpated from Washington by the mid-1900s, little site-specific ecological or demographic information was available to quantitatively assess habitat availability for a reintroduced population. Consequently, the habitat model developed by Lewis and Hayes (2004) was based on fisher-habitat associations reported in the literature (e.g., Buskirk and Powell 1994; Powell and Zielinski 1994; Weir and Harestad 2003). The habitat suitability model included 4 variables (percent vegetation cover, percent conifer cover, quadratic mean diameter of

overstory trees, and elevation) to identify relatively dense, late-successional forests at low and mid-elevations (Lewis and Hayes 2004). The study also identified suitable travel cover for fishers (low- and mid-elevation mid-seral forest) and mapped the distribution of suitable habitat and travel cover. The 3 largest blocks of interconnected suitable habitat and travel cover were identified as potential reintroduction areas: Olympic Peninsula, southwestern Cascades, and northwestern Cascades (Figure 18.2).

<insert Figure 18.2 near here>

<txt>Lewis and Hayes (2004) used 6 criteria to rank the suitability of these 3 areas for fisher reintroduction: amount of suitable habitat, amount of suitable habitat on public land, amount of suitable habitat in protected areas (National Parks, National Monuments, and Wilderness Areas), amount of land with >50% suitable habitat, proximity to an existing fisher population, and estimated fisher carrying capacity. The authors used a GIS to calculate the first 5 criteria, and PATCH to estimate carrying capacity for each potential reintroduction area (Lewis and Hayes 2004). They then used PATCH output to compare relative carrying-capacity estimates among areas, rather than to predict absolute carrying capacities. PATCH simulations incorporated a habitat map and suitability scores for 7 habitat types (Lewis and Hayes 2004). The authors based suitability scores on a scale of 0–10, with 0 being given to those cover types considered nonhabitat (e.g., water, urban) and 10 to cover types considered optimal habitat. Because fishers select late-seral forests at the stand scale and use structural elements typically found in late-seral stands for den and rest sites, the authors considered the late-seral forest cover type to be optimal habitat. The authors considered mid-seral forests to be intermediate in habitat suitability and early seral forests to have low suitability. Habitat scores also differed with elevation (above and below the Pacific silver fir [*Abies amabilis*] zone).

The authors assessed uncertainty in model outputs using sensitivity analyses performed with 3 estimates of dispersal distances and 3 Leslie matrices of survival and fecundity values (Lewis and Hayes 2004). They also used an alternative set of habitat scores in the sensitivity analyses that assigned lower values to suboptimal habitat types. Elasticity analyses indicated that results from all parameter sets (matrices with low, mean, and high values for survival and fecundity) were most sensitive to adult female survival, followed by juvenile survival, and then equally by subadult survival and adult female fecundity. PATCH simulation output was highly sensitive to assumptions concerning the contrast between optimal and suboptimal habitat types, but relatively insensitive to alternative assumptions about dispersal distances (Lewis and Hayes 2004).

The Olympic Peninsula was chosen as the best location for the first fisher reintroduction in Washington because it ranked first in 5 of 6 suitability criteria. Although the Olympic Peninsula ranked third in distance from an existing fisher population, the static habitat-suitability model suggested that the area supported the greatest amount, best configuration, and greatest protection of suitable habitat among the 3 potential reintroduction areas (Figure 18.2). The PATCH model simulations also indicated that the Olympic Peninsula supported a significantly greater carrying capacity than the 2 Cascade areas. Support from a key land-management agency (Olympic National Park) also motivated selection of this reintroduction area.

The 49 fishers released during late 2008 and early 2009 traveled extensively after being released and are currently distributed broadly across diverse landscapes, including lands previously classified as both suitable and unsuitable in the feasibility assessment (Lewis and Hayes 2004; Lewis et al. 2010). Altogether, 90 fishers were released from 2008 to 2010, but many translocated fishers have not yet established home ranges and formal analyses are not yet

possible. Researchers are currently monitoring home-range establishment by translocated fishers on the Olympic Peninsula, but a comprehensive assessment of the accuracy of the suitability model will not be possible until longer-term occupancy of home ranges is assessed over the next decade.

Without region-specific data to evaluate the feasibility of a reintroduction, managers must rely on data from other areas. Additionally, like most geographically extensive models, the Washington state habitat model did not include inputs for forest-floor structure (e.g., downed logs, slash and cull piles) or prey abundance and distribution, which are likely to be important predictors of fisher occupancy on the Olympic Peninsula. This points to the challenges of extrapolating habitat models developed from data on extant populations to new areas that may contain very different prey and vegetation communities. Although the assessment of suitable habitat for fishers was limited by an incomplete understanding of fisher habitat requirements in the coastal Pacific Northwest, the models provided useful tools to evaluate and draw informed conclusions about the feasibility of a successful reintroduction based on the best available information.

Case Study 2: Using Coupled Dynamic Habitat and Population Models to Evaluate Fisher Conservation Strategies in the Southern Sierra Nevada

<txt>An important limitation of most habitat models for *Martes* is that they predict suitability based on a static “snapshot” of current vegetation conditions. Consequently, some planners have sought to project how such vegetation attributes may change over time to better predict long-term habitat suitability. The accelerating pace of anthropogenic climate change (Lawler et al., this volume) is an additional motivation for analyzing habitat conditions in a

dynamic model. To address these issues, Spencer et al. (2011) used coupled dynamic habitat and population models to project the potential effects of alternative management strategies (e.g., landscape-level fuels treatments) on the southern Sierra Nevada fisher population. This study was among the first to integrate many of the modeling approaches described above into a single decision-support process.

Spencer et al.'s (2011) analysis area supports the southernmost population of fishers, consisting of a few hundred individuals in the southern Sierra Nevada of California that are isolated from other populations by >400 km (Zielinski et al. 2005) (Figure 18.3). Several studies have projected future increases in wildfire intensity and extent in this region (Miller et al. 2009; Westerling et al. 2009), motivating proposals for vegetation management (e.g., forest thinning) to alter wildfire behavior (U.S. Department of Agriculture 2004). Such actions may also reduce fisher habitat quality and continuity, at least in the short term, because fishers select the densest forest stands as resting habitat (Zielinski et al. 2004a). To assess the status of the population and evaluate alternative vegetation-management approaches, Spencer et al. (2011) coupled a fisher SEPM with other spatially explicit models. The coupled models allowed the authors to test alternative hypotheses in a simulation environment, evaluate the relative risks of fuels treatments and wildfires to the population, and identify conservation actions that are likely to sustain and expand the population (Spencer et al. 2011).

<insert Figure 18.3 near here>

<txt>Spencer et al. (2011) built a number of alternative GAM models using GIS data layers and fisher detection-nondetection data from a regional systematic monitoring program (Zielinski et al. 2006c). The best GAM model provided a strong fit to the fisher data using 3 predictors: latitude-adjusted elevation, annual precipitation, and total aboveground biomass of

trees (kg/ha) averaged over 5 km² (see Spencer et al. 2008). The model suggested that fishers in the southern Sierra Nevada are associated with mid-elevation forests that experience relatively low annual precipitation and support abundant large trees. Forest biomass provided the best discrimination of fisher occupancy among the biotic variables tested, probably because it correlates strongly with many forest-structure variables known to predict fisher habitat selection at finer spatial scales (e.g., large trees, dense canopies, abundant dead-wood structures) (Zielinski et al. 2004a,b; 2006c).

Spencer et al. (2011) then parameterized the PATCH model using predicted probability of fisher occurrence from the GAM to estimate an equilibrium fisher population size (or carrying capacity) and to identify potential population source, sink, and expansion areas. Each territory was assigned a score from 0 to 10 in PATCH, based on mean occupancy scores within the territory. High-quality territories (territory score >7.5, reflecting an average within-territory occupancy >0.75) were assigned high fecundity and survivorship rates based on a 4-stage Leslie matrix and demographic rates from Lewis and Hayes (2004). Below the maximum score of 7.5, fecundity and survival rates were decremented linearly with territory score. The average resulting lambda (intrinsic rate of population growth) for territories scoring >7.5 was 1.19 (i.e., predicted source territories); lambda for territories scoring about 6.0–7.0 averaged about 1.0 (stable population); and lambda for territories scoring less than about 5.5 averaged <1.0 (predicted sink territories) (Spencer et al. 2011). Despite assumptions about linear correlations between fisher vital rates and predicted occupancy (from the GAM), the SEPM parameters, when combined with appropriate sensitivity analyses, were judged useful for estimating potential equilibrium population sizes and for relative comparisons between alternative forest-management scenarios. Fishers were initially seeded into the highest-scoring territories and those

where fishers were detected in the monitoring data. After the SEPM was run for 40 years to allow the model population to reach equilibrium on the landscape, the ending population size was recorded as a measure of carrying capacity for comparisons among different scenarios. The authors compared scenarios using equilibrium behavior (e.g., ending population size) rather than transient dynamics (e.g., temporal trends) because the latter metrics are typically more sensitive to uncertainty in model parameters (Grimm and Railsback 2005). Model uncertainty was assessed using a sensitivity analysis that varied vital rates, territory sizes, initial population sizes, maximum dispersal distances, and other model parameters. Population dynamics were highly sensitive to adult female survivorship and relatively insensitive to other age-specific vital rates. Territory size had a greater effect on estimated carrying capacity than did initial population size or dispersal distance (Spencer et al. 2011).

The southern Sierra Nevada fisher population is generally restricted to habitats south of the Merced River, despite some apparently suitable habitat to the north (Figure 18.3). Spencer et al. (2011) estimated carrying capacity in the area occupied currently by constraining the model fishers from establishing territories north of the river. To evaluate the potential for northward expansion under current habitat conditions, the authors then allowed fishers to establish territories north of the river. Because there is evidence of elevated human-influenced mortality rates in the northern portion of the occupied range (e.g., roadkill, diseases spread by cats and dogs), the analysis then decreased survivorship in 5% increments throughout the entire analysis area to observe effects on the modeled population expansion.

Using the most defensible range of input parameters, the SEPM results estimate the equilibrium population size at 73–147 adult females south of the Merced River (Figure 18.3). After weighing various uncertainties in these estimates and comparing them with several

independent estimates (based on density extrapolations from fisher field studies and sampling theory applied to the regional fisher monitoring data), the authors estimated that the current population is most likely between 160 and 360 individuals, and includes only about 55–120 adult females.

When modeled fishers were allowed to cross the Merced River, the population expanded northward into mostly moderate-value habitat, establishing modest new population source areas north of the Tuolumne River. The expansion front stalled about 90 km north of the Merced River, where predicted probability of fisher occurrence generally dropped below 0.5. Predicted territory occupancy north of the Merced River dropped with decreasing survivorship rates, with no expansion north of the Tuolumne River when the survival rates were reduced by 15%, and no expansion north of the Merced River when survival rates were reduced by 20%.

To evaluate how fires, vegetation management, and other disturbances might affect the population, Spencer et al. (2011) coupled the spatially explicit habitat and population models with a stochastic, spatially explicit landscape-change model, LANDIS-II (Mladenoff 2004; Scheller et al. 2007). LANDIS-II simulates how succession, fires, forest management, and other processes may affect forest vegetation over time by tracking changes in forest biomass by tree species and age cohorts. Using a factorial experimental design with replication, the authors used LANDIS-II to simulate vegetation for 50 years in a variety of scenarios. These scenarios assumed 2 alternative future fire regimes (1 calibrated to match recent fire histories, and 1 that assumed more severe fire conditions in the future) and different types, rates, and locations of fuels treatments. For each decade and replicate, the forest-biomass outputs from LANDIS-II were used to update the habitat model on which PATCH runs. The model did not simulate direct mortality of fishers due, for example, to wildfire, but fishers could disperse to higher suitability

areas in the event a fire or management action reduced the habitat value of their current territory. Model fishers unable to settle into unoccupied, high-quality territories following a disturbance event would experience relatively low survival and fecundity rates, as appropriate for the value of the particular territory where they settled. Scenarios were compared using total female population size at year 60. Structural-equation models were used to assess the net effects of fuels treatments on fishers, which can include direct negative effects (removal of forest biomass by logging) as well as indirect positive effects (by limiting fires that also remove biomass).

Model results suggested that, across a range of alternative fire regimes and vegetation treatments, the positive indirect effects of fuels treatments on fishers generally outweighed the direct negative effects. However, coarse-resolution landscape and fuels models, such as those used in this study, more accurately project changes in fire extent than in fire severity, yet the latter factor may have a greater impact on fisher habitat suitability. Spencer et al. (2011) did not use a formal population-viability analysis to estimate level of risk (e.g., probabilities of extirpation); however, the relatively small size of the southern Sierra Nevada fisher population, at <400 individuals, suggests that it may be at risk of extirpation due to stochastic threats. Northward expansion of the population appeared to have the greatest potential to increase the population's size and viability. Population expansion could be facilitated by (1) forest-management activities in the area north of the Merced River that increase fisher habitat quality and contiguity, and (2) adaptive management in the northern portion of the current range (in and immediately south of Yosemite National Park), to reduce fisher mortality sources and increase survivorship. The authors concluded that fuel treatments strategically located in and adjacent to areas with the greatest risk of severe crown fires, based on evaluation of human ignition sources and fuels characteristics, could also reduce risks to fisher habitat quality.

<A>Multispecies Models

<txt>Although legal mandates often focus on conservation of individual species of concern, single-species conservation planning may often lead to less efficient solutions than an approach that simultaneously addresses the habitat needs of many species of concern (Marcot and Raphael, this volume). Several software packages (e.g., MARXAN [Ball et al. 2009], ZONATION [Moilanen et al. 2009]) are commonly used to analyze output from distribution models to find solutions (i.e., landscape designs) that optimally (e.g., in the minimum area) capture habitat needs for many species. Because most real-world optimization problems are too complex to be solved exactly, reserve-selection models identify both an approximation of the “best” solution and the degree of variation (or uncertainty) among alternative approximations (Ball et al. 2009). MARXAN has been used to assess the overlap and contrasts between the habitat requirements of *Martes* species and those of other taxa in the Rocky Mountain region and in California, USA (Carroll et al. 2003a; Zielinski et al. 2006a).

Although these studies addressed spatial relations among habitat conditions for multiple species, it is more challenging to project how *Martes* populations will interact dynamically with populations of potential prey or predator species. Using the ZONATION software, Rayfield et al. (2009) developed a conservation plan for the American marten in an area of Quebec, Canada that considered the spatial interaction between the distribution of the marten and its 2 primary prey species. Areas were identified providing suitable habitat for all 3 species and of sufficient area and connectivity for marten population persistence. As yet, no studies have projected the indirect effects of climate change on *Martes* populations via changes in vegetation and disturbance patterns, although these have recently been completed for other taxa (Keith et al. 2008).

<A>Use of Models within the Conservation Planning Process

<txt>The 4 types of models reviewed above (predicting distribution, dispersal, persistence, and optimal reserves; Table 18.1) have distinct roles within conservation-planning processes for *Martes*. Distribution models in some form are used to support almost all planning efforts attempting to integrate *Martes* conservation into land-management practices (Lofroth et al. 2011). The relevance of the remaining model types varies depending on available data and the goals of the planning process. Connectivity or dispersal is rarely addressed in planning for *Martes* or other wildlife populations because of limited availability of dispersal data and limited understanding of the influence of dispersal processes on population persistence. New techniques for analysis of genetic data may allow connectivity to be assessed more rigorously in the planning process (Schwartz et al., this volume).

Because the ultimate goal of *Martes* conservation is population persistence, one might anticipate broad use of viability models such as SEPM (Schumaker et al. 2004). The limited availability of demographic data, and the uncertainty associated with using demographic parameters from other populations, however, have limited the application of such complex models in planning processes. Recent examples (e.g., Spencer et al. 2011) where such models were developed, evaluated with detailed sensitivity analyses, and applied to management issues may encourage their broader use in planning. The key to appropriate use of such complex models is to assess what qualitative insights are robust to the many potential sources of uncertainty.

<A>Conclusions

<txt>The relatively large territory sizes and habitat-limited dispersal ability of most

Martes species suggest that their persistence may be influenced by large-scale population processes, as is true for other forest-associated “focal” species, such as the Northern Spotted Owl (Thompson 1991; Lamberson et al. 1994). In contrast to findings about the spotted owl, several studies suggest that habitat requirements for the fisher in western North America are complex and poorly described by broad-scale GIS layers for such attributes as forest type and age class (Davis et al. 2007; Carroll et al. 2010). Fisher-habitat models with a relatively large proportion of unexplained variance, or that contain covariates that are surrogates for unmeasured factors, will have poor generality when extrapolated to other areas (Carroll et al. 1999). When this problem is combined with the challenge of representing large-scale population processes accurately in a simulation model, it is clear that the predictions of quantitative habitat and viability models will be highly uncertain. Additionally, the examples discussed in this review suggest that the link between the results of such models and management is often mediated by the many factors that constrain management decisions. Nevertheless, the costs associated with reintroductions and other broad-scale conservation efforts generally justify the use of such models to inform the planning process before substantial resources are committed. The complexity of conserving *Martes* populations, given increasing human demands on forest ecosystems, suggests that quantitative models will be increasingly relevant for enhancing the success of *Martes* conservation efforts, as long as model uncertainty is considered explicitly and model results are used to inform decisions rather than predict outcomes.

<A>Acknowledgments

<txf>We thank the many biologists who assisted in collection of the fisher distribution data that supported the analyses described in this chapter. H. Rustigian-Romsos and John Jacobson helped

prepare the figures. M. Raphael, K. Aubry, and 2 anonymous reviewers provided helpful comments.

Table 18.1. Types of habitat and viability models discussed in this chapter

Model type	Acronym	Input data	Output predictions	Reference
Habitat suitability index	HSI	Environmental	Distribution	Thomasma et al. 1991
Generalized linear	GLM	Environmental	Distribution	Carroll et al. 1999
Generalized additive	GAM	Environmental	Distribution	Davis et al. 2007
Hierarchical Bayesian spatial	HB	Environmental	Distribution	Carroll et al. 2010
Centrality		Habitat	Dispersal	Garroway et al. 2008
Non-spatial viability		Habitat, demographic	Persistence	Lacy and Clark 1993
Spatially explicit population	SEPM	Habitat, demographic	Persistence	Spencer et al. 2011
				Lewis and Hayes 2004
Reserve selection		Distribution	Optimal reserves	Zielinski et al. 2006a

Figure 18.1. Use of a hierarchical spatial model and centrality analysis to evaluate fisher distribution and population connectivity in California. (a) Spatial model predictions of Carroll et al. (2010) identify currently occupied areas (composite prediction), as well as areas of potentially suitable habitat that may be unoccupied currently because of dispersal limitations (prediction without ρ). (b) Shortest-path and current-flow betweenness centrality was then used to predict habitat linkages that might provide dispersal routes between populations.

Figure 18.2. The 3 areas in western Washington state that were compared to evaluate their capability for supporting a reintroduced fisher population. Areas of suitable habitat >3000 ha are shown. Fishers were released onto the Olympic Peninsula beginning in 2008.

Figure 18.3. Influence of survival rate on modeled fisher source-sink dynamics and potential for population expansion north of the Merced River (dashed line). Net value of territories (annualized births minus deaths) were averaged across 20 replicate simulations run for 200 years using intermediate parameter values. Source territories (births exceed deaths) are shaded, and sink territories (deaths exceed births) are hatched. The inset illustrates the reduced potential for northward expansion and establishment of new source territories with a 10% reduction in survivorship relative to baseline assumptions. Data gaps caused underrepresentation of territory value in Sequoia-Kings Canyon National Park. Adapted from Spencer et al. (2011).

Figure 1a.

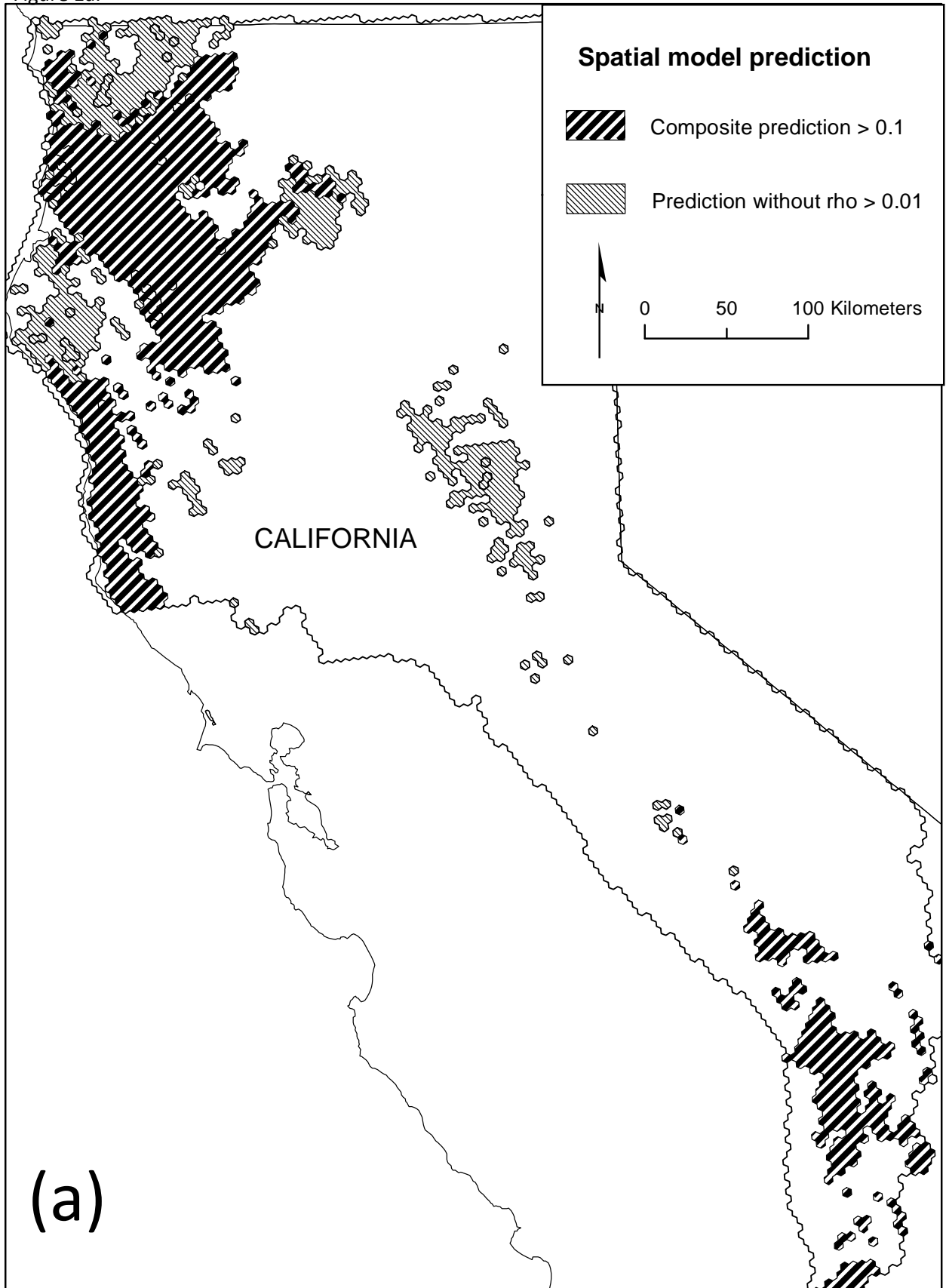
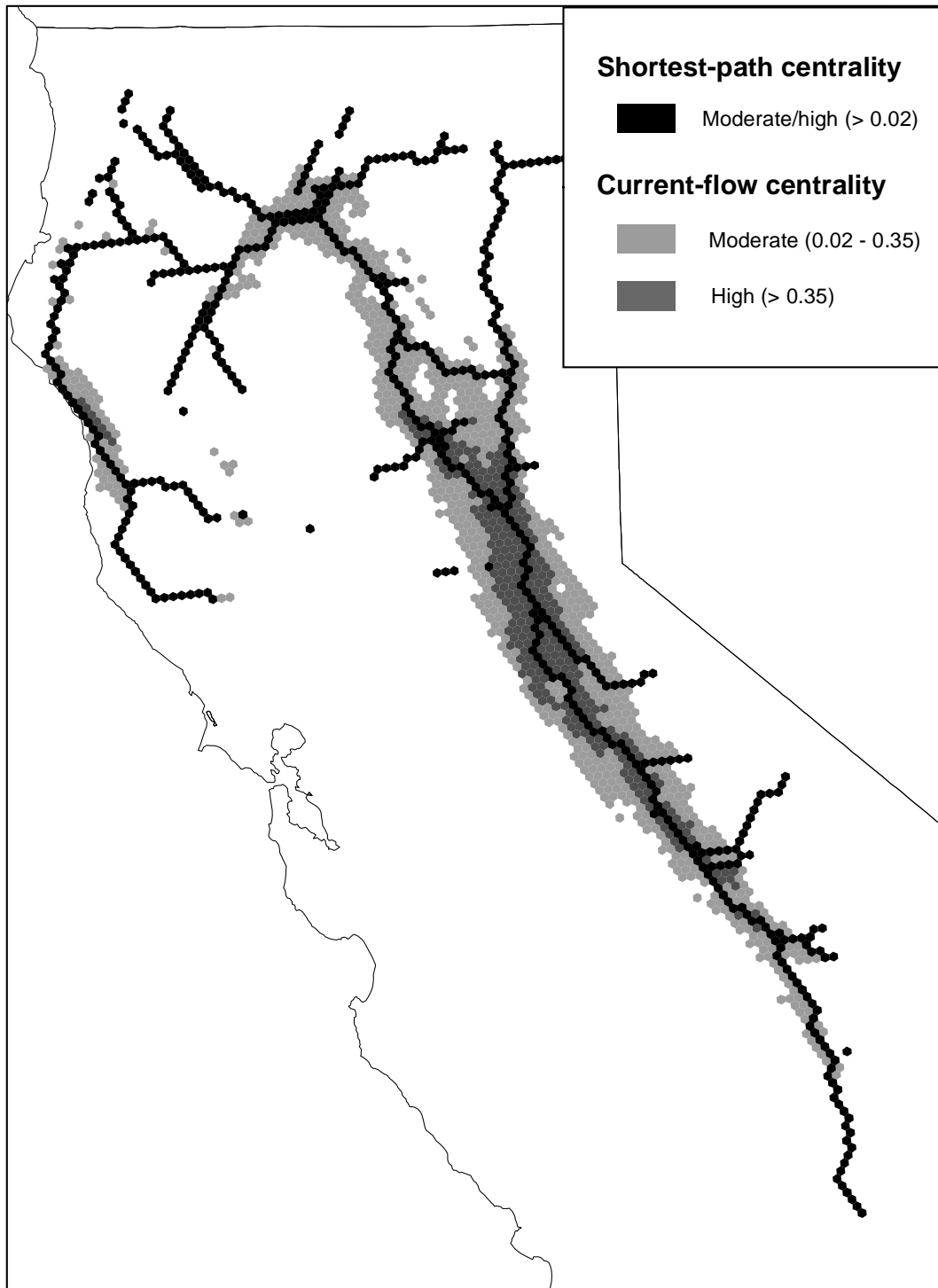
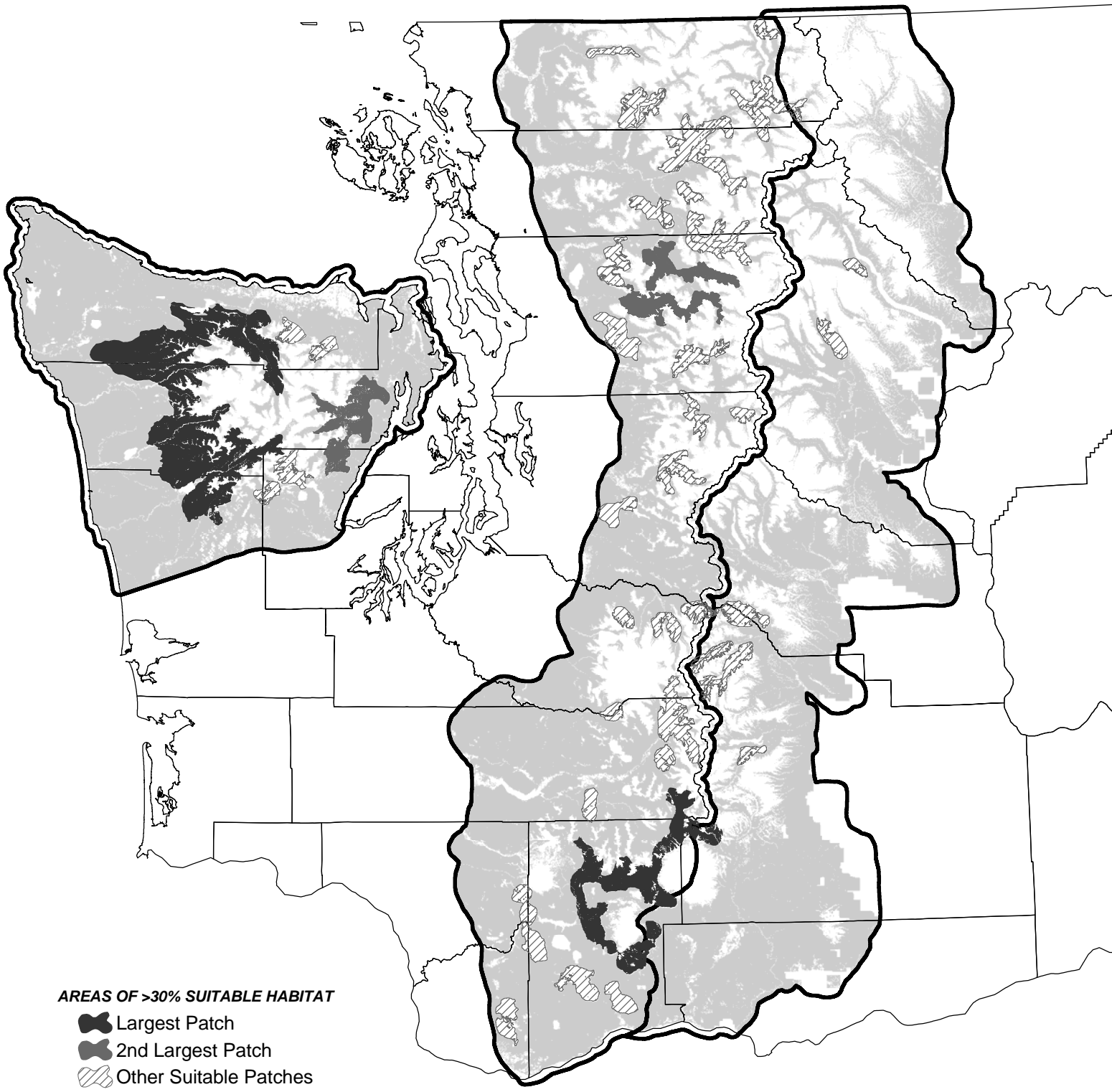







Figure 1b.







AREAS OF >30% SUITABLE HABITAT


-  Largest Patch
-  2nd Largest Patch
-  Other Suitable Patches

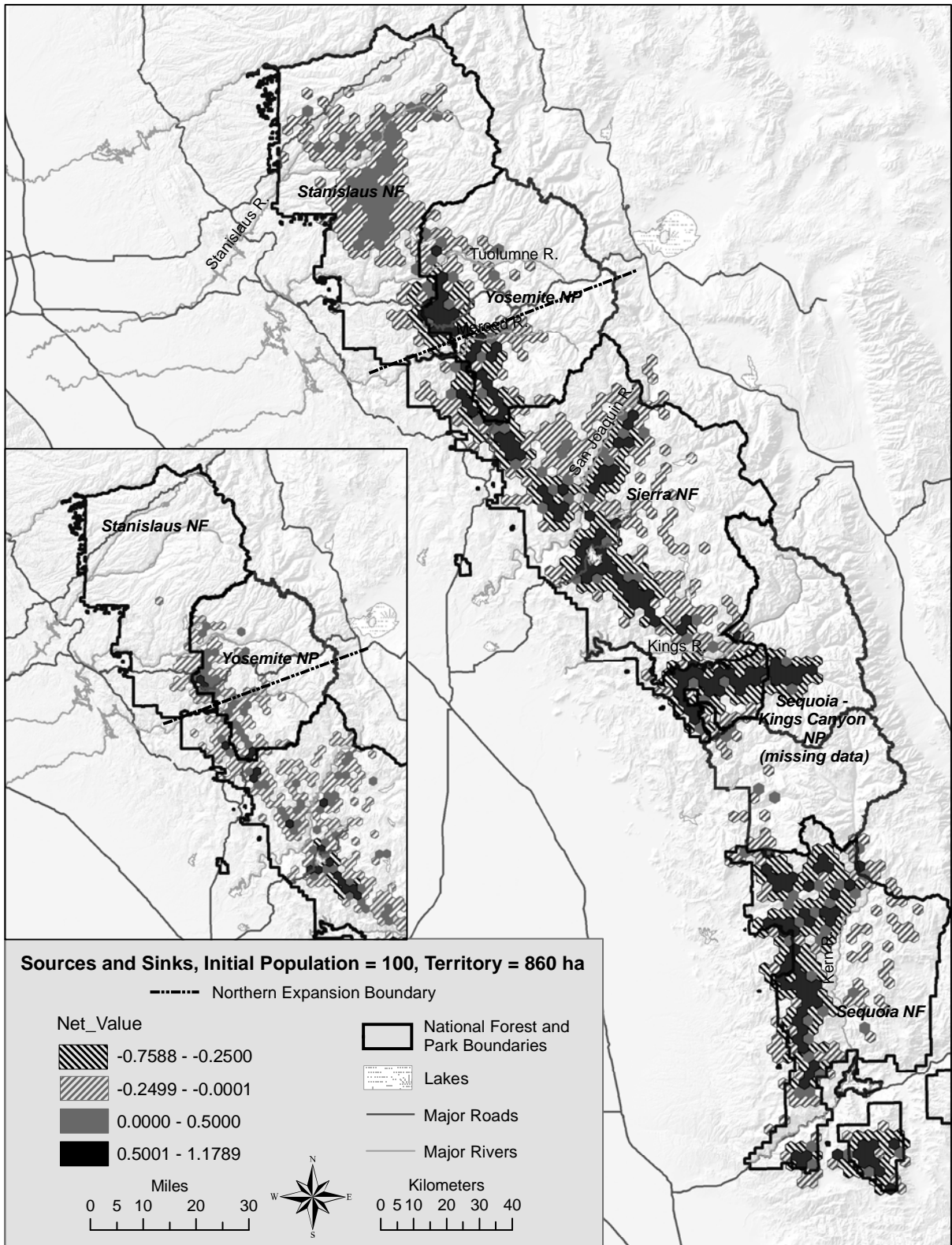
-  AREAS OF $\leq 30\%$ SUITABLE HABITAT
-  NON-HABITAT AREAS

 25Km²

 Study Area Regions
 County Boundary

0 25 50 Kilometers





<bmh>Literature Cited

- Abramov, A., and C. Wozencraft. 2008. *Martes zibellina*. IUCN Red List of Threatened Species. Version 2010.4. <http://www.iucnredlist.org> (accessed 5 February 2011).
- Abramov, A.V., S.V. Kruskop, and A.A. Lissovsky. 2006. Distribution of the stone marten *Martes foina* (Carnivora, Mustelidae) in the European part of Russia. *Russian Journal of Theriology* 5:37–41.
- Acevedo-Whitehouse, K., and A.A. Cunningham. 2006. Is MHC enough for understanding wildlife immunogenetics? *Trends in Ecology & Evolution* 21:433–438.
- Ackman, R.G., and S.C. Cunnane. 1992. Long-chain polyunsaturated fatty acids: sources, biochemistry and nutritional/clinical applications. Pages 161–215 *in* *Advances in applied lipid research*. Volume 1. F.B. Padley, editor. JAI Press, London, UK.
- Adams, A.L. 1873. *Field and forest rambles: with notes and observations on the natural history of eastern Canada*. Henry S. King, London, UK.
- Adams, L.A., P. Angulo, and K.D. Lindor. 2005. Nonalcoholic fatty liver disease. *Canadian Medical Association Journal* 172:899–905.
- Adney, T. 1893a. Some New Brunswick traps—III [deadfall for fisher]. *Forest and Stream* 40:51.
- Adney, T. 1893b. Some New Brunswick traps—III [deadfall for marten]. *Forest and Stream* 40:72.
- Agosta, S.J., and J.A. Klemens. 2008. Ecological fitting by phenotypically flexible genotypes: implications for species associations, community assembly and evolution. *Ecology Letters* 11:1–12.

- Agren, E.O., L. Nordenberg, and T. Morner. 2000. Surgical implantation of radiotelemetry transmitters in European badgers (*Meles meles*). *Journal of Zoo and Wildlife Medicine* 31:52–55.
- Aguilar, A., G. Roemer, S. Debenham, M. Binns, D. Garcelon, and R.K. Wayne. 2004. High MHC diversity maintained by balancing selection in an otherwise genetically monomorphic mammal. *Proceedings of the National Academy of Sciences, USA* 101:3490–3494.
- Agustí, J., A. Sanz de Siriaa, and M. Garcé. 2003. Explaining the end of the hominoid experiment in Europe. *Journal of Human Evolution* 45:145–153.
- Ahima, R.S., D. Prabakaran, C. Mantzoros, D. Qu, B. Lowell, E. Maratos-Flier, and J.S. Flier. 1996. Role of leptin in the neuroendocrine response to fasting. *Nature* 382:250–252.
- Ahn, S., W.B. Krohn, A.J. Plantinga, T.J. Dalton, and J.A. Hepinstall. 2002. Agricultural land changes in Maine: a compilation and brief analysis of Census of Agriculture data, 1850–1997. Maine Agricultural and Forest Experiment Station, Technical Bulletin 182. University of Maine, Orono, USA.
- Alasaad, S., L. Rossi, R.C. Soriguer, L. Rambozzi, D. Soglia, J.M. Perez, and X.Q. Zhu. 2009. *Sarcoptes* mite from collection to DNA extraction: the lost realm of the neglected parasite. *Parasitology Research* 104:723–732.
- Albrecht, N.M., C.L. Heusser, and M.K. Schwartz. 2009. Differences between fisher and marten distributions in north Idaho. Page 1 *in* Biology and conservation of martens, sables, and fishers: a new synthesis. Abstracts from the 5th International *Martes* Symposium, University of Washington, Seattle, USA.

- Alcover, J.A., 1980 (1982). Note on the origin of the present mammalian fauna from the Balearic and Pityusics islands. *Miscellaneous Zoology (Barcelona)* 6:141–149.
- Allan, A.A. 2001. Ticks (class Arachnida: order Acarina). Pages 72–106 *in* Parasitic diseases of wild mammals. W.M. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Allen, A.W. 1982. Habitat suitability index models: marten. Report FWS/OBS-82/10.11, USDI Fish and Wildlife Service. Washington, D.C., USA.
- Allen, A.W. 1983. Habitat suitability index models: fisher. Report FWS/OBS-82/10.45, USDI Fish and Wildlife Service, Washington, D.C., USA.
- Allen, A.W. 1984. Habitat suitability index models: marten. Revised. Report FWS/OBS-82/10.11, USDI Fish and Wildlife Service. Washington, D.C., USA.
- Allen, C.D., and D.D. Breshears. 1998. Drought-induced shift of a forest-woodland ecotone: Rapid landscape response to climate variation. *Proceedings of the National Academy of Sciences, USA* 95:14839–14842.
- Allen, D.L. 1985. These fifty years: the conservation record of North American Wildlife and Natural Resources Conference. *Transactions of the North American Wildlife and Natural Resources Conference* 50:11–67.
- Allen, E.A., D.J. Morrison, and G.W. Wallis. 1996. Common tree diseases of British Columbia. Natural Resources Canada, Canadian Forest Service, Victoria, British Columbia.
- Allen, J.A. 1876. The former range of some New England carnivorous mammals. *American Naturalist* 10:708–715.
- Allendorf, F.W., and G. Luikart. 2007. Conservation and the genetics of populations. Blackwell Publishing, Malden, Massachusetts, USA.

- Álvares, F., and J.C. Brito. 2006. Habitat requirements and potential areas of occurrence for the pine marten in north-western Portugal: conservation implications. Pages 29–45 in *Martes in carnivore communities*. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- American Association of Zoo Veterinarians. 2010. Small carnivore medical management guidelines. <http://www.aazv.org/displaycommon.cfm?an=1&subarticlenbr=272> (accessed January 2011).
- Amori, G., F.M. Angelici, C. Prigioni, and A.V. Taglianti. 1996. The mammal fauna of Italy: a review. *Hystrix* 8:3–7.
- An, D.J., S.H. Yoon, J.Y. Park, I.S. No, and B.K. Park. 2008. Phylogenetic characterization of canine distemper virus isolates from naturally infected dogs and a marten in Korea. *Veterinary Microbiology* 132:389–395.
- Anderson, B. 2002. Reintroduction of fishers (*Martes pennanti*) to the Catoosa Wildlife Area in Tennessee. Tennessee Wildlife Resources Agency, Crossville, USA.
- Anderson, E. 1970. Quaternary evolution of the genus *Martes* (Carnivora, Mustelidae). *Acta Zoologica Fennici* 130:1–132.
- Anderson, E. 1994. Evolution, prehistoric distribution, and systematics of *Martes*. Pages 13–25 in *Martens, sables and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Anderson, R.C. 2000. *Nematode parasites of vertebrates: their development and transmission*. CABI Publishing, Cambridge, Massachusetts, USA.

- Anderson, R.M. 1934. The distribution, abundance, and economic importance of the game and fur-bearing mammals of western North America. Pages 4055–4075 *in* Proceedings of the Fifth Pacific Science Congress, University of Toronto Press, Ontario, Canada.
- Anderson, S.B. 1987. Wild furbearer management in eastern Canada. Pages 1040–1048 *in* Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Andruskiw, M., J.M. Fryxell, I.D. Thompson, and J.A. Baker. 2008. Habitat-mediated variation in predation risk by the American marten. *Ecology* 89:2273–2280.
- Anonymous. 1779. Records for Machias, Maine. Indian truck house accounts, 1776–1779. Massachusetts Archives 147:557 (microfilm).
- Anonymous. 1895. Fish and game. *The Industrial Journal*, Bangor, Maine. May 17:6.
- Aramburu, C.E., and M.E. King-Dagen. 1995. Population and the environment: perspectives, propositions and experience. Pages 99–102 *in* Integrating people and wildlife for a sustainable future. J.A. Bissonette and P.R. Krausman, editors. Wildlife Society, Bethesda, Maryland, USA.
- Archibald, W.R., and R.H. Jessup. 1984. Population dynamics of the pine marten (*Martes americana*) in the Yukon Territory. Pages 81–97 *in* Northern ecology and resource management. R. Olson, R. Hastings, and F. Geddes, editors. University of Alberta Press, Edmonton, Canada.
- Armstrong, D.P., and P.J. Seddon. 2008. Directions in reintroduction biology. *Trends in Ecology & Evolution* 23:20–25.

- Arnemo J.M., A. Fahlman, K. Madslie, S. Brunberg, B. Ytrehus, and J. Swenson. 2007. Long-term evaluation of Telonics® intraperitoneal radiotransmitters in free-ranging brown bears (*Ursus arctos*). Pages 96–97 in Proceedings of the AAZV/AAWV/NAG Joint Conference, Knoxville, Tennessee, USA.
- Arnold, M. 1997. Natural hybridization and evolution. Oxford University Press, UK.
- Arthur, S.M., and W.B. Krohn. 1991. Activity patterns, movements, and reproductive ecology of fishers in southcentral Maine. *Journal of Mammalogy* 72:379–385.
- Arthur, S.M., W.B. Krohn, and J.R. Gilbert. 1989. Home range characteristics of adult fishers. *Journal of Wildlife Management* 53:674–679.
- Arzoumanian, L. 2003. What is hemolysis, what are the causes, what are the effects? BD Tech Talk 2:1–3.
- Ashbrook, F.G., and K.B. Hanson. 1930. The normal breeding season and gestation period of martens. U.S. Department of Agriculture, Circular No. 107, Washington, D.C., USA.
- Ashizawa, H., T. Murakami, D. Nosaka, S. Tateyama, and S. Habe. 1978. *Concinnum ten*. *Murakami Bulletin* 25:77–84.
- Aubry, K.B., J.P. Hayes, B.L. Biswell, and B.G. Marcot. 2003. The ecological role of tree-dwelling mammals in western coniferous forests. Pages 405–443 in *Mammal community dynamics: management and conservation in the coniferous forests of western North America*. C.J. Zabel and R.G. Anthony, editors. Cambridge University Press, UK.
- Aubry, K.B., and D.B. Houston. 1992. Distribution and status of the fisher (*Martes pennanti*) in Washington. *Northwestern Naturalist* 73:69–79.
- Aubry, K.B., and L.A. Jagger. 2006. The importance of obtaining verifiable occurrence of data on forest carnivores and an interactive website for archiving results from standardized

- surveys. Pages 159–176 in *Martes* in carnivore communities. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Aubry, K.B., and J.C. Lewis. 2003. Extirpation and reintroduction of fishers (*Martes pennanti*) in Oregon: implications for their conservation in the Pacific states. *Biological Conservation* 114:79–90.
- Aubry, K.B., K.S. McKelvey, and J.P. Copeland. 2007. Distribution and broadscale habitat relations of the wolverine in the contiguous United States. *Journal of Wildlife Management*, 71:2147–2158.
- Aubry K.B., and C.M. Raley. 2002a. Selection of nest and roost trees by pileated woodpeckers in coastal forests of Washington. *Journal of Wildlife Management* 66:392–406.
- Aubry, K.B., and C.M. Raley. 2002b. The pileated woodpecker as a keystone habitat modifier in the Pacific Northwest. Pages 257–274 in *Proceedings of the symposium on the ecology and management of dead wood in western forests*. W.F. Laudenslayer Jr., P.J. Shea, B.E. Valentine, C.P. Weatherspoon, and T.E. Lisle, technical coordinators. USDA Forest Service, General Technical Report PSW-GTR-181.
- Aubry, K.B., and C.M. Raley. 2006. Ecological characteristics of fishers (*Martes pennanti*) in the southern Oregon Cascade Range—update: July 2006. Unpublished report, USDA Forest Service, Pacific Northwest Research Station, Olympia, Washington, USA.
- Aubry, K.B., F.E. Wahl, J. von Kienast, T.J. Catton, and S.G. Armentrout. 1997. Use of remote video cameras for the detection of forest carnivores and in radio-telemetry studies of fishers. Pages 350–361 in *Martes: taxonomy, ecology, techniques and management*. G.

- Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Aubry, K., S. Wisely, C. Raley, and S. Buskirk. 2004. Zoogeography, spacing patterns, and dispersal in fishers: insights gained from combining field and genetic data. Pages 201–220 in Martens and fishers (*Martes*) in human-altered landscapes: an international perspective. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Audubon, J.J., and J. Bachman. 1852. Quadrupeds of North America. Volume 1. V. G. Aubudon, New York, USA.
- Aune, K.E., and P. Schladweiler. 1997. Age, sex structure, and fecundity of the American marten in Montana. Pages 61–77 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Avise, J.C. 2000. Phylogeography: The history and formation of species. Harvard University Press, Cambridge, Massachusetts, USA.
- Avise, J.C. 2004. Molecular markers, natural history, and evolution. Sinauer Associates, Sunderland, Massachusetts, USA.
- Avise, J.C., J. Arnold, R.M. Ball, E. Bermingham, T. Lamb, J.E. Neigel, C.A. Reeb, and N.C. Saunders. 1987. Intraspecific phylogeography: the mitochondrial DNA bridge between population genetics and systematics. *Annual Review of Ecology and Systematics* 18:489–522.
- Azanza, B., A.M. Alonso-Zarza, M.A. Álvarez-Sierra, J.P. Calvo, S. Fraile, I. García-Paredes, E. Gómez, M. Hernández-Fernández, A. Van Der Meulen, D. De Miguel, P. Montoya, J.

- Morales, X. Murelaga, P. Peláez-Campomanes, B. Perez, V. Quiralte, M.J. Salesa, I.M. Sánchez, A. Sánchez-Marco, and D. Soria. 2004. Los yacimientos de vertebrados continentals del Aragoniense superior (Mioceno medio) de Toril, Cuenca de Calatayud-Daroca. *Geo-Temas* 6:271–274.
- Bach, L.A., R. Thomsen, C. Pertoldi, and V. Loeschcke. 2006. Evolution of density-dependent dispersal in an individual-based adaptive metapopulation model including explicit kin competition and demographic stochasticity. *Ecological Modelling* 192:658–666.
- Badgley, C., J.C. Barry, M.E. Morgan, S. V. Nelson, A.K. Behrensmeyer, T.E. Cerling, and D. Pilbeam. 2008. Ecological changes in Miocene mammalian record show impact of prolong climatic forcing. *Proceedings of the National Academy of Sciences, USA* 105:12145–12149.
- Baguette, M., and G. Mennechez. 2004. Resource and habitat patches, landscape ecology and metapopulation biology: a consensual viewpoint. *Oikos* 106:399–403.
- Bailey, L.L., T.R. Simons, and K.H. Pollock. 2004. Estimating site occupancy and detection probability parameters for terrestrial salamanders. *Ecological Applications* 14:692–702.
- Bailey, L.L., J.E. Hines, J.D. Nichols, and D.I. MacKenzie. 2007. Sampling design trade-offs in occupancy studies with imperfect detections: examples and software. *Journal of Applied Ecology* 17:281–290.
- Bailey, L.L., J.A. Reid, E.D. Forsman, and J.D. Nichols. 2009. Modeling co-occurrence of northern spotted and barred owls: accounting for detection probability differences. *Biological Conservation* 142:2983–2989.

- Baird, R., and S. Frey. 2000. Riding Mountain National Park fisher reintroduction program 1994–1995. Unpublished report, Riding Mountain National Park, Manitoba, Canada.
- Bakeev, N.N., and V.V. Timofeev. 1973. Sable. Acclimatization. Pages 16–25 *in* Sable, martens, yellow-throated marten: distribution, resources, ecology, and conservation. A.A. Nasimovich, editor. Nauka, Moscow, USSR. (in Russian)
- Baker, J.M. 1992. Habitat use and spatial organization of pine marten on southern Vancouver Island, British Columbia. Thesis, Simon Fraser University, Burnaby, British Columbia, Canada.
- Baker, R.J., L.C. Bradley, R.D. Bradley, J.W. Dragoo, M.D. Engstrom, R.S. Hoffmann, C.A. Jones, F. Reid, D.W. Rice, and C. Jones. 2003. Revised checklist of North American mammals north of Mexico, 2003. Occasional Papers, Museum, Texas Tech University 229:1–23.
- Bakeyev, N.N. 1994. Stone martens in the Commonwealth of Independent States. Pages 243–245<Au: page numbers did not make sense compared with entry below; I searched online to determine correct numbers> *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Bakeyev, N.N., and A.A. Sinitsyn. 1994. Status and conservation of sables in the Commonwealth of Independent States. Pages 246–254 *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Baldwin, R.A., and L.C. Bender. 2008. Distribution, occupancy, and habitat correlates of American martens (*Martes americana*) in Rocky Mountain National Park, Colorado.

- Journal of Mammalogy 89:419–427.
- Balestrieri, A., L. Remonti, N. Ferrari, A. Ferrari, T.L. Valvo, S. Robetto, and R. Orusa. 2006. Sarcoptic mange in wild carnivores and its co-occurrence with parasitic helminths in the Western Italian Alps. *European Journal of Wildlife Research* 52:196–201.
- Balestrieri, A., L. Remonti, A. Ruiz-González, B.J. Gómez-Moliner, M. Vergara, and C. Prigioni. C. 2010. Range expansion of the pine marten (*Martes martes*) in an agricultural landscape matrix (NW Italy). *Mammalian Biology* 75:412–419.
- Balestrieri, A., A. Ruiz-González, L. Remonti, B. Gómez-Moliner, S. Genovese, L. Gola, P.F. del Po, C. Prigioni, and others. 2008. A non-invasive genetic survey of the pine marten (*Martes martes*) in the western River Po plain (Italy): preliminary results. *Hystrix* 19:77–80.
- Balharry, D. 1993. Social organization in martens: an inflexible system? Symposium of the Zoological Society of London 65:321–345.
- Balkenhol, N., L.P. Waits, and R.J. Dezznai. 2009. Statistical approaches in landscape genetics: an evaluation of methods for linking landscape and genetic data. *Ecography* 32:818–830.
- Ball, I.R., H.P. Possingham, and M.E. Watts. 2009. Marxan and relatives: software for spatial conservation prioritization. Pages 185–195 in *Spatial conservation prioritization: quantitative methods and computational tools*. A. Moilanen, K.A. Wilson, H.P. Possingham, editors. Oxford University Press, UK.
- Balloux, F. 2010. The worm in the fruit of the mitochondrial DNA tree. *Heredity* 104:419–420.
- Balmysheva, N.P., and L.L Solovenchuk. 1999a. Association between mutations of mitochondrial DNA genes for cytochrome *b* and NADH dehydrogenase 5/6 in sable *Martes zibellina* L. *Russian Journal of Genetics* 35:1447–1451.

- Balmysheva, N.P., and L.L. Solovenchuk. 1999b. Genetic variation of the mitochondrial DNA gene encoding cytochrome *b* in the Magadan population of sable *Martes zibellina* L. Russian Journal of Genetics 35:1077–1081.
- Baltrūnaitė, L. 2006a. Diet and winter habitat selection of the pine marten (*Martes martes* L.) in sandy and clay plains, Lithuania. Pages 99–108 in *Martes* in carnivore communities. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Baltrūnaitė, L. 2006b. Diet and winter habitat use of the red fox, pine marten and raccoon dog in Dzūkija national park, Lithuania. Acta Zoologica Lituanica 16:46–60.
- Banci, V., and G. Proulx. 1999. Resiliency of furbearers to trapping in Canada. Pages 175–203 in *Mammal trapping*. G. Proulx, editor. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Banfield, A.F.W. 1974. The mammals of Canada. University of Toronto Press, Ontario, Canada.
- Baniandrés, N., and E. Virgós. 2009. Intraguild predation by eagle owls influences local abundance of a medium-sized carnivore, the stone marten. X International Congress of Ecology, Sydney, Australia. Poster presentation. Abstracts available at: <http://www.intecol10.org/abstracts/pdf/0908015Abstract01260.pdf>.
- Barea-Azcón, J.M., E. Virgós, E. Ballesteros-Duperón, M. Moleón, and M. Chiroso. 2006. Surveying carnivores at large spatial scales: a comparison of four broad-applied methods. Biodiversity and Conservation 16:1213–1230.
- Barja, I. 2005. Winter distribution of European pine marten *Martes martes* scats in a protected area of Galicia, Spain. Mammalia 69:435–438.
- Barker, F.C., and J.S. Danforth. 1882. Hunting and trapping on the upper Magalloway River and

- Parmarchenee Lake: first winter in the wilderness. D. Lothrop and Company, Boston, Massachusetts, USA.
- Barker, I., and C. Parrish. 2001. Parvovirus infections. Pages 131–146 *in* Infectious diseases of wild mammals. E.S. Williams and I.K. Barker, editors. Iowa State University Press, Ames, USA.
- Barnosky, A.D., editor. 2004. Biodiversity response to climate change in the Middle Pleistocene: the Porcupine Cave fauna from Colorado. University of California Press, Berkeley, USA.
- Baron, W.R. 1992. Historical climate records for the northeastern United States, 1640 to 1900. Pages 74–91 *in* R.S. Bradley and P.D. Jones, editors. Climate change since A.D. 1500. Routledge, New York, USA.
- Barrett, M.W., G. Proulx, D. Hobson, D. Nelson, and J.W. Nolan. 1989. Field evaluation of the C120 Magnum trap for marten. *Wildlife Society Bulletin* 17:299–306.
- Barrett, R.H. 1983. Smoked aluminum track plots for determining furbearer distribution and relative abundance. *California Fish and Game* 69:188–190.
- Barrientos, R., and E. Virgós. 2006. Reduction of potential food interference in two sympatric carnivores by sequential use of shared resources. *Acta Oecologica* 30:107–116.
- Barry, J.C., M.E. Morgan, L.J. Flynn, D. Pilbeam, A.K. Behrensmeyer, S. Mahmood Raza, I.A. Khan, C. Badgley, J. Hicks, and J. Kelley. 2002. Faunal and environmental change in the late Miocene Siwaliks of northern Pakistan. *Paleobiology* 28:1–71.
- Barton, D.E., F.N. David, and E. Fix. 1962. Persistence in a chain of multiple events when there is simple dependence. *Biometrika* 49:351–357.
- Baskin, J.A. 1998. Mustelidae. Pages 152–173 *in* Evolution of Tertiary mammals of North America, volume 1: Terrestrial carnivores, ungulates, and ungulatelike mammals. C.M.

- Janis, K.M. Scott, and L.L. Jacobs, editors. Cambridge University Press, UK.
- Baskin, J.A. 2005. Carnivora from the late Miocene Love bone bed of Florida. *Bulletin of the Florida Museum of Natural History* 45:419–440.
- Bateman, M.C. 1982. Marten re-introduction to Terra Nova National Park. Unpublished report to Parks Canada, Canadian Wildlife Service, Atlantic Region.
- Bateman, M.C. 1984. Marten re-introduction to Terra Nova National Park. Unpublished report to Parks Canada, Canadian Wildlife Service, Atlantic Region.
- Bateman, M.C. 1986. Winter habitat use, food habits and home range size of the marten, *Martes americana*, in western Newfoundland. *Canadian Field-Naturalist* 100:58–62.
- Bates, K., K. Steenhof, and M.R. Fuller. 2003. Recommendations for finding PTTs on the ground without VHF telemetry. Proceedings of the Argos Animal Tracking Symposium, Annapolis, Maryland, USA. <http://srfs.wr.usgs.gov/pdf/finding%20ptts.pdf> (accessed 31 May 2011).
- Baumgartner, M.F., and B.R. Mate. 2005. Summer and fall habitat of North Atlantic right whales (*Eubalaena glacialis*) inferred from satellite telemetry. *Canadian Journal of Fisheries and Aquatic Sciences* 62:527–543.
- Beale, C.M., J.J. Lennon, J.M. Yearsley, M.J. Brewer, and D.A. Elston. 2010. Regression analysis of spatial data. *Ecology Letters* 13:246–264.
- Beckmann, J.P. 2006. Carnivore conservation and search dogs: the value of a novel, non-invasive technique in the Greater Yellowstone Ecosystem. Pages 28–34 in *Greater Yellowstone public lands: a century of discovery, hard lessons, and bright prospects*. A.W. Biel, editor. Proceedings of the 8th Biennial Scientific Conference on the Greater Yellowstone Ecosystem. Yellowstone Center for Resources, Yellowstone National Park,

Wyoming, USA.

- Begon, M. 2008. Effects of host diversity on disease dynamics. Pages 12–29 *in* Infectious disease ecology: effects of ecosystems on disease and of diseases on ecosystems. R.S. Ostfeld, F. Keesing, and V.T. Eviner, editors. Princeton University Press, New Jersey, USA.
- Behrensmeyer, A.K., and J.C. Barry. 2005. Biostratigraphic surveys in the Siwaliks of Pakistan: a method for standardized surface sampling of the vertebrate fossil record. *Palaeontologia Electronica* 8. http://palaeo-electronica.org/paleo/2005_1/behrens15/issue1_05.htm.
- Beier, P., D.R. Majka, and W.D. Spencer. 2008. Forks in the road: choices in procedures for designing wildland linkages. *Conservation Biology* 22:836–851.
- Beja-Pereira, A., R. Oliveira, P.C. Alves, M.K. Schwartz, and G. Luikart. 2009. Advancing ecological understandings through technological transformations in noninvasive genetics. *Molecular Ecology Resources* 9:1279–1301.
- Belant, J.L. 2003a. A hairsnare for forest carnivores. *Wildlife Society Bulletin* 31:482–485.
- Belant, J.L. 2003b. Comparison of 3 tracking mediums for detecting forest carnivores. *Wildlife Society Bulletin* 31:744–747.
- Belant, J.L. 2007. Human-caused mortality and population trends of American marten and fisher in a U.S. National Park. *Natural Areas Journal* 27:155–160.
- Ben-David, M., R.W. Flynn, and D.M. Schell. 1997. Annual and seasonal changes in diets of martens: evidence from stable isotope analysis. *Oecologia* 111:280–291.
- Bennitt, R., J.S. Dixon, V.H. Cahalane, W.W. Chase, and W.L. McAtee. 1937. Statement of policy. *Journal of Wildlife Management* 1:1–2.
- Benson, D.A. 1959. The fisher in Nova Scotia. *Journal of Mammalogy* 40:451.

- Benton, A.H., and D.L. Kelly. 1975. An annotated list of New York Siphonaptera. *Journal of the New York Entomological Society* 83:142–156.
- Berdoy, M., J.P. Webster, and D.W. Macdonald. 1995. Parasite-altered behaviour: is the effect of *Toxoplasma gondii* on *Rattus norvegicus* specific? *Parasitology* 111:403–409.
- Berg, A.H., T.P. Combs, X. Du, M. Brownlee, and P.E. Scherer. 2001. The adipocyte-secreted protein Acrp30 enhances hepatic insulin action. *Nature Medicine* 7:947-953.
- Berg, W.E. 1982. Reintroduction of fisher, pine marten, and river otter. Pages 159–175 in *Midwest furbearer management*. G.C. Sanderson, editor. Proceedings of the 43rd Midwest Fish and Wildlife Conference, Wichita, Kansas, USA.
- Bergin, T.M. 1992. Habitat selection by the western kingbird in western Nebraska: a hierarchical analysis. *Condor* 94:903–911.
- Bernor, R.L., V. Fahlbusch, and H.-W. Mittmann. 1996. The evolution of western Eurasian Neogene mammal faunas. Columbia University Press, New York, USA.
- Beuter, J.H. 1990. Social and economic impacts of the spotted owl conservation strategy. Technical Bulletin No. 9003. American Forest Resource Alliance, Washington, D.C., USA.
- Beyer, K.M., and R.T. Golightly. 1996. Distribution of Pacific fisher and other forest carnivores in coastal northwestern California—revision: April 1996. Unpublished report to California Department of Fish and Game, FG-3156-WM. Humboldt State University, Arcata, California, USA.
- Biggins, D.E., J.L. Godbey, B.J. Miller, and L.R. Hanebury. 2006. Radio telemetry for black-footed ferret research and monitoring. Pages 175–190 in *Recovery of the black-footed*

- ferret: progress and continuing challenges. J.E. Rolle, B.J. Miller, J.L. Godbey, and D.E. Biggins, editors. U.S. Geological Survey, Scientific Investigations Report 2005-5293.
- Biggins, D.E., B.J. Miller, L.R. Hanebury, and R.A. Powell. **In press**. Mortality of Siberian polecats and black-footed ferrets released onto prairie dog colonies. *Journal of Mammalogy*.
- Bininda-Emonds, O.R.P., M. Cardillo, K.E. Jones, R.D.E. MacPhee, R.M.D. Beck, R. Grenyer, S.A. Price, R.A. Vos, J.L. Gittleman, and A. Purvis. 2007. The delayed rise of present day mammals. *Nature* 446:507–512.
- Bininda-Emonds, O.R.P., J.L. Gittleman, and A. Purvis. 1999. Building large trees by combining phylogenetic information: a complete phylogeny of the extant Carnivora (Mammalia). *Biological Review* 74:143–175.
- Birks, J., J. Messenger, T. Braithwaite, A. Davison, R. Brookes, and C. Strachan. 2004. Are scat surveys a reliable method for assessing distribution and population status of pine martens? Pages 235–252 *in* Martens and fishers (*Martes*) in human-altered environments. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Birks, J.D.S., J.E. Messenger, and E.C. Halliwell. 2005. Diversity of den sites used by pine martens *Martes martes*: a response to the scarcity of arboreal cavities? *Mammal Review* 35:313–320.
- Bissonette, J.A., and S. Broekhuizen. 1995. *Martes* populations as indicators of habitat spatial patterns: the need for a multiscale approach. Pages 95–121 *in* Landscape approaches in mammalian ecology and conservation. W. Lidicker, editor. University of Minnesota Press, Minneapolis, USA.

- Bissonette, J.A., R.J. Fredrickson, and B.J. Tucker. 1988. The effects of forest harvesting on marten and small mammals in western Newfoundland. Unpublished report to Newfoundland and Labrador Wildlife Division and Corner Brook Pulp and Paper, Ltd., Utah State University, Logan.
- Bissonette, J.A., R.J. Frederickson, and B.J. Tucker. 1989. American marten: a case for landscape-level management. Transactions of the North American Wildlife and Natural Resources Conference 54:89–101.
- Bissonette, J.A., D.J. Harrison, C.D. Hargis, and T.G. Chapin. 1997. The influence of spatial scale and scale-sensitive properties on habitat selection by American marten. Pages 368–385 in Wildlife and landscape ecology: effects of pattern and scale. J.A. Bissonette, editor. Springer, New York, USA.
- Bjornvad, C.R., J. Elnif, and P.T. Sangild. 2004. Short-term fasting induces intra-hepatic lipid accumulation and decreases intestinal mass without reduced brush-border enzyme activity in mink (*Mustela vison*) small intestine. Journal of Comparative Physiology B 174:625–632.
- Black, J.D. 1950. The rural economy of New England—a regional study. Harvard University Press, Cambridge, Massachusetts, USA.
- Blix A.S., and E.S. Nordoy. 2007. Ross seal (*Ommatophoca rossii*) annual distribution, diving behaviour, breeding and moulting, off Queen Maud Land, Antarctica. Polar Biology 30:1449–1458.
- Bobrov, V.V., A.A. Warshavsky, and L.A. Khlyap. 2008. Alien mammals in the ecosystems of Russia. KMK Scientific Press Ltd., Moscow, Russia. (in Russian)

- Boegel, K., E. Schaal, and H. Moegle. 1977. The significance of martens as transmitters of wildlife rabies in Europe. *Zentralblatt für Bakteriologie Parasitologie Infektionskrankheiten Hygiene Erste Abteilung Allgemeine Medizinische Mikrobiologie Parasitologie* 283:184–190.
- Boitani, L. 2003. Wolf conservation and recovery . Pages 317–340 *in* *Wolves: behavior, ecology, and conservation*. L.D. Mech and L. Boitani, editors. University of Chicago Press, Illinois, USA.
- Bolen, E.G. 1989. Conservation biology, wildlife management, and spaceship earth. *Wildlife Society Bulletin* 17:351–354.
- Bolen, E.G., and W.L. Robinson. 2003. *Wildlife ecology and management*. Prentice Hall, Upper Saddle River, New Jersey, USA.
- Borgatti, S.P. 2005. Centrality and network flow. *Social Networks* 27:55–71.
- Bornstein, S., T. Mörner, and W.M. Samuel. 2001. *Sarcoptes scabiei* and sarcoptic mange. Pages 107–119 *in* *Parasitic diseases of wild mammals*. W.M. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Boss, J., G. Devean, and C. Drysdale. 1987. Kejimikujik National Park—American marten reintroduction program interim report, February–October, 1987. Environment Canada, Parks Canada, Natural Resources Conservation, Kejimikujik National Park, New Brunswick, Canada.
- Botzler, R.G., and S.B. Armstrong-Buck. 1985. Ethical considerations in research on wildlife diseases. *Journal of Wildlife Diseases* 21:341–345.
- Bouchy, P., K. Theodorou, and D. Couvet. 2005. Metapopulation viability: influence of migration. *Conservation Genetics* 6:75–78.

- Bouillant, A., and R. Hanson. 1965. Epizootiology of mink enteritis: I. Stability of the virus in feces exposed to natural environmental factors. *Canadian Journal of Comparative Medicine and Veterinary Science* 29:125–128.
- Boulanger, J., S. Himmer, and C. Swan. 2004. Monitoring a grizzly bear population trend and demography using DNA mark-recapture methods in the Owikeno Lake area of British Columbia. *Canadian Journal of Zoology* 82:1267–1277.
- Boulanger, J., K.C. Kendall, J.B. Stetz, D.A. Roon, L.P. Waits, and D. Paetkau. 2008. Multiple data sources improve DNA-based mark-recapture population estimates of grizzly bears. *Ecological Applications* 18:577–589.
- Bowman, J., D. Donovan, and R.C. Rosatte. 2006. Numerical response of fishers to synchronous prey dynamics. *Journal of Mammalogy* 87:480–484.
- Bowman, J.C., and J.F. Robitaille. 1997. Winter habitat use of American martens *Martes americana* within second-growth forest in Ontario, Canada. *Wildlife Biology* 3:97–105.
- Bowman, J.C., D. Sleep, G. J. Forbes, and M. Edwards. 2000. The association of small mammals with coarse woody debris at log and stand scales. *Forest Ecology and Management* 129:119–124.
- Boyce, M.S. 2006. Scale for resource selection functions. *Diversity and Distributions* 12:269–276.
- Boyce, M.S., and L.L. McDonald. 1999. Relating populations to habitats using resource selection functions. *Trends in Ecology & Evolution* 14:268–272.
- Boyce, M.S., P.R. Vernier, S.E. Nielsen, and F.K.A. Schmiegelow. 2002. Evaluating resource selection functions. *Ecological Modelling* 157:281–300.

- Bradle, B.J. 1957. The fisher returns to Wisconsin. Wisconsin Conservation Bulletin 22(11):9–11.
- Bradshaw, C.J.A., M.A. Hindell, N.J. Best, K.L. Phillips, G. Wilson, and P.D. Nichols. 2003. You are what you eat: describing the foraging ecology of southern elephant seals (*Mirounga leonina*) using blubber fatty acids. Proceedings of the Royal Society B 270:1283–1292.
- Brainerd, S.M., J.-O. Helldin, E. Lindström, and J. Rolstad. 1994. Eurasian pine martens and old industrial forest in southern boreal Scandinavia. Pages 343–354 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Brainerd, S.M., J.-O. Helldin, E. R. Lindström, E. Rolstad, J. Rolstad, and I. Storch. 1995. Pine marten (*Martes martes*) selection of resting and denning sites in Scandinavian managed forests. Annales Zoologici Fennici 32:151–157.
- Brainerd, S.M., and J. Rolstad. 2002. Habitat selection by Eurasian pine martens *Martes martes* in managed forest of southern boreal Scandinavia. Wildlife Biology 8:289–297.
- Braithwaite, H. 1892. Bears, wolves, blackcats and foxes: some facts about the fur bearing animals of the northern woods, by a New Brunswick trapper. The Industrial Journal, Bangor, Maine, August 19:6.
- Brander, R.B., and D.J. Books. 1973. Return of the fisher. Natural History 82:52–57.
- Brassard, J.A., and R. Bernard. 1939. Observations on breeding and development of marten, *Martes a. americana* (Kerr). Canadian Field-Naturalist 53:15–21.
- Breiman, L. 2001. Random forests. Machine Learning 45:5–32.

- Breitenmoser, U., C. Breitenmoser-Wursten, L.W. Carbyn, and S.M. Funk. 2001. Assessment of carnivore reintroductions. Pages 240–281 *in* Carnivore conservation. J.L. Gittleman, S.M. Funk, D.W. Macdonald, and R.K. Wayne, editors. Cambridge University Press, New York, USA.
- Bremner-Harrison, S., S.W.R. Harrison, B.L. Cypher, J.D. Murdock, and J. Maldonado. 2006. Development of a single-sampling noninvasive hair snare. *Wildlife Society Bulletin* 34:456–461.
- Breshears, D.D., N.S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J. Belnap, J.J. Anderson, O.B. Myers, and C.W. Meyer. 2005. Regional vegetation die-off in response to global-change-type drought. *Proceedings of the National Academy of Sciences, USA* 102:15144–15148.
- Bright, P.W. 2000. Lessons from lean beasts: conservation biology of the mustelids. *Mammal Review* 30:217–226.
- Brinson, M., and J. Verhoeven. 1999. Riparian forests. Pages 265–299 *in* Maintaining biodiversity in forest ecosystems. M.L. Hunter, Jr., editor. Cambridge University Press, UK.
- Britten M.W., P.L. Kennedy, and S. Ambrose. 1999. Performance and accuracy evaluation of small satellite transmitters. *Journal of Wildlife Management* 63:1349–1358.
- Broekhuizen, S. 2006. *Martes* issues in the 21st century: lessons to learn from Europe. Pages 3–19 *in* *Martes* in carnivore communities. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.

- Broekhuizen, S., and G.J.D.M. Müskens. 2000. Utilization of rural and suburban habitat by pine marten *Martes martes* and beech marten *Martes foina*: species-related potential and restrictions for adaptation. *Lutra* 43:223–227.
- Bronson, E., M. Bush, T. Viner, S. Murray, S.M. Wisely, and S.L. Deem. 2007. Mortality of captive black-footed ferrets (*Mustela nigripes*) at Smithsonian's National Zoological Park, 1989–2004. *Journal of Zoo and Wildlife Medicine* 38:169–176.
- Brook, B.W. 2000. Pessimistic and optimistic bias in population viability analysis. *Conservation Biology* 14:564–566.
- Brooks, D.R., and A. Ferrao. 2005. The historical biogeography of coevolution: emerging infectious diseases are evolutionary accidents waiting to happen. *Journal of Biogeography* 32:1291–1299.
- Brooks, D.R., and E.P. Hoberg. 2000. Triage for the biosphere: the need and rationale for taxonomic inventories and phylogenetic studies of parasites. *Comparative Parasitology* 67:1–25.
- Brooks, D.R., and E.P. Hoberg. 2006. Systematics and emerging infectious diseases: from management to solution. *Journal of Parasitology* 92:426–429.
- Brooks, D.R., and E.P. Hoberg. 2007. How will climate change affect host-parasite assemblages? *Trends in Parasitology* 23:571–574.
- Brooks, D.R., V. León-Régagnon, D.A. McLennan, and D. Zelmer. 2006. Ecological fitting as a determinant of the community structure of platyhelminth parasites of anurans. *Ecology* 87:S76–S85.

- Broquet, T., C.A. Johnson, E. Petit, I. Thompson, F. Burel, and J.M. Fryxell. 2006a. Dispersal and genetic structure in the American marten, *Martes americana*. *Molecular Ecology* 15:1689–1697
- Broquet, T., N. Ray, E. Petit, J.M. Fryxell, and F. Burel. 2006b. Genetic isolation by distance and landscape connectivity in the American marten (*Martes americana*). *Landscape Ecology* 21:877–889.
- Brown, J.H., and M.V. Lomolino. 1998. *Biogeography*. Sinauer Associates, Sunderland, Massachusetts, USA.
- Brown, J.S. 1988. Patch use as an indicator of habitat preference, predation risk, and competition. *Behavioral Ecology and Sociobiology* 22:37–47.
- Brown, M.K., and G. Will. 1979. Food habits of the fisher in northern New York. *New York Fish and Game Journal* 26:87–92.
- Brown, R.D., and R.O. Braaten. 1998. Spatial and temporal variability of Canadian monthly snow depths, 1946–1995. *Atmosphere-Ocean* 36:37–54.
- Brown, R.N., M.W. Gabriel, G. Wengert, J.M. Higley, and J.E. Foley. 2006. Fecally transmitted viruses associated with Pacific fishers (*Martes pennanti*) in northwestern California. *Transactions of the Western Section of The Wildlife Society* 42:40–46.
- Brown, R.N., M.W. Gabriel, G.M. Wengert, S. Matthews, J.M. Higley, and J.E. Foley. 2007. Pathogens associated with fishers. Pages 3–47 in *Pathogens associated with fishers (Martes pennanti) and sympatric mesocarnivores in California—final draft report to the U.S. Fish and Wildlife Service for Grant # 813335G021*. U.S. Fish and Wildlife Service, Yreka, California, USA.

- Brumfield, R.T., P. Beerli, D.A. Nickerson, and S.V. Edwards. 2003. The utility of single nucleotide polymorphisms in inferences of population history. *Trends in Ecology & Evolution* 18:249–256.
- Bryant, H.N., W.B. McGillivray, and W.B. Bartlett. 1997. Skeletal morphometrics of fishers from Alberta: sexual size dimorphism and age-class comparisons. Pages 40–58 in *Martes: taxonomy, ecology, techniques and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Brzeziński, M. 1994. Summer diet of the sable *Martes zibellina* in the Middle Yenisei taiga, Siberia. *Acta Theriologica* 39:103–107.
- Buck, S.G. 1982. Habitat utilization by fisher (*Martes pennanti*) near Big Bar, California. Thesis, Humboldt State University, Arcata, California, USA.
- Buck, S.G., C. Mullis, and A. Mossman. 1979. A radio telemetry study of fisher in northwestern California. *California-Nevada Wildlife Transactions* 1979:166–172.
- Buck, S.G., C. Mullis, and A.S. Mossman. 1983. Corral Bottom-Hayfork Bally fisher study: final report. Unpublished final report to USDA Forest Service. Humboldt State University, Arcata, California, USA.
- Buck, S.G., C. Mullis, A.S. Mossman, I. Show, and C. Coolahan. 1994. Habitat use by fishers in adjoining heavily and lightly harvested forest. Pages 368–376 in *Martens, sables and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Bull, E.L., and A.K. Blumton. 1999. Effect of fuels reduction on American marten and their prey. USDA Forest Service, Research Note PNW-RN-539.

- Bull, E.L., and T.W. Heater. 2000. Resting and denning sites of American marten in northwestern Oregon. *Northwest Science* 74:179–185.<Au: volume no. confirmed online – “3” did not make sense compared with Bull et al. 2005>
- Bull, E.L., and T.W. Heater. 2001. Survival, causes of mortality, and reproduction in the American marten in northwestern Oregon. *Northwestern Naturalist* 82:1–6.
- Bull, E.L., T.W. Heater, and J.F. Shepherd. 2005. Habitat selection by the American marten in northwestern Oregon. *Northwest Science* 79:37–43.
- Bull, E.L., R.S. Holthausen, and M.G. Henjum. 1992. Roost trees used by pileated woodpeckers in northeastern Oregon. *Journal of Wildlife Management* 56:786–793.
- Bull, E.L., C.G. Parks, and T.R. Torgersen. 1997. Trees and logs important to wildlife in the interior Columbia River basin. USDA Forest Service, General Technical Report PNW-GTR-391.
- Bulmer, M.G. 1974. A statistical analysis of the 10-year cycle in Canada. *Journal of Animal Ecology* 43:701–718.
- Bunnell, F.L., E. Wind, and R. Wells. 2002. Dying and dead hardwoods: their implication to management. Pages 695–716 *in* Proceedings of the symposium on the ecology and management of dead wood in western forests. W.F. Laudenslayer Jr., P.J. Shea, B.E. Valentine, C.P. Weatherspoon, and T.E. Lisle, technical coordinators. USDA Forest Service, General Technical Report PSW-GTR-18.
- Burek, K. 2001. Mycotic diseases. Pages 514–533 *in* Infectious diseases of wild mammals. E.S. Williams and I.K. Barker, editors. Iowa State University Press, Ames, USA.

- Burnham, K.P., and D.R. Anderson. 2002. Model selection and multi-model inference: a practical information-theoretic approach. Second edition. Springer-Verlag, New York, USA.
- Burns, C.E., K.M. Johnston, and O.J. Schmitz. 2003a. Global climate change and mammalian species diversity in U.S. national parks. *Proceedings of the National Academy of Sciences, USA* 100:11474–11477.
- Burns, R., E.S. Williams, D. O'Toole, and J.P. Dubey. 2003b. *Toxoplasma gondii* infections in captive black-footed ferrets (*Mustela nigripes*), 1992–1998: clinical signs, serology, pathology, and prevention. *Journal of Wildlife Diseases* 39:787–797.
- Burris, O.E., and D.E. McKnight. 1973. Game transplants in Alaska. Alaska Department of Fish Game, Game Technical Bulletin 4, Juneau, USA.
- Busch, D.E., and J.C. Trexler, editors. 2003. Monitoring ecosystems, interdisciplinary approaches for evaluating ecoregional initiatives. Island Press, Covello, California, USA.
- Buskirk, S.W. 1983. The ecology of marten in southcentral Alaska. Dissertation, University of Alaska, Fairbanks, USA.
- Buskirk, S.W. 1984. Seasonal use of resting sites by marten in south-central Alaska. *Journal of Wildlife Management* 48:950–953.
- Buskirk, S.W. 1994. Introduction to the genus *Martes*. Pages 1–10 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Buskirk, S.W., S.C. Forrest, M.G. Raphael, and H.J. Harlow. 1989. Winter resting site ecology of marten in the central Rocky Mountains. *Journal of Wildlife Management* 53:191–196.

- Buskirk, S.W., A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. 1994. Martens, sables, and fishers: biology and conservation. Cornell University Press, Ithaca, New York, USA.
- Buskirk, S.W., and H.J. Harlow. 1989. Body-fat dynamics of the American marten (*Martes americana*) in winter. *Journal of Mammalogy* 70:191–193.
- Buskirk, S.W., H.J. Harlow, and S.C. Forrest. 1988. Temperature regulation in American marten (*Martes americana*) in winter. *National Geographic Research* 4:208–218.
- Buskirk, S.W., Y. Ma, and Z. Jiang. 1996a. Diets of, and prey selection by sables (*Martes zibellina*) in northern China. *Journal of Mammalogy* 77:725–730.
- Buskirk, S.W., and L.L. McDonald. 1989. Analysis of variability in home range size of the American marten. *Journal of Wildlife Management* 53:997–1004.
- Buskirk, S., and J. Millspaugh. 2006. Metrics for studies of resource selection. *Journal of Wildlife Management* 70:358–366.
- Buskirk, S.W., and R.A. Powell. 1994. Habitat ecology of fishers and American martens. Pages 283–296 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Buskirk, S.W., C.M. Raley, K.B. Aubry, W.J. Zielinski, M.K. Schwartz, R.T. Golightly, K.L. Purcell, R.D. Weir, and J.S. Yaeger. 2010. Meta-analysis of resting site selection by the fisher in the Pacific coastal states and provinces—final report. Unpublished final report to the Fisher Steering Committee, USDA Forest Service, Pacific Northwest Region, Portland, Oregon, USA.
- Buskirk, S.W., and L.F. Ruggiero. 1994. American marten. Pages 7–37 in *The scientific basis for conserving forest carnivores: American marten, fisher, lynx and wolverine in the western*

- United States. L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski, technical editors. USDA Forest Service, General Technical Report GTR-RM-254.
- Buskirk, S., M. Yiqing, X. Li, and J. Zhaowen. 1996b. Winter habitat ecology of sables (*Martes zibellina*) in relation to forest management in China. *Ecological Applications* 6:318–325.
- Butterworth, E.W., and M. Beverley-Burton. 1980. The taxonomy of *Capillaria* spp. (Nematoda: Trichuroidea) in carnivorous mammals from Ontario, Canada. *Systematic Parasitology* 1:211–236.
- Cahill, G.F., Jr. 1976. Starvation in man. *Clinics in Endocrinology and Metabolism* 5:397–415.
- Calabrese, M., and L.R. Davis. 2010. Occurrence of den trees for fisher (*Martes pennanti*), in the sub boreal pine–spruce biogeoclimatic zone in the Chilcotin area of British Columbia. Unpublished report to West Fraser Mills and BC Timber Sales, Williams Lake, British Columbia, Canada.
- California Department of Fish and Game. 2010. A status review of the fisher (*Martes pennanti*) in California. Pages 77–79 in [http://www.dfg.ca.gov/wildlife/nongame/publications/California Department of Fish and Game](http://www.dfg.ca.gov/wildlife/nongame/publications/California%20Department%20of%20Fish%20and%20Game) (accessed 10 Mar 2010).
- Callas, R.L., and P. Figura. 2008. Translocation plan for the reintroduction of fishers (*Martes pennanti*) to Sierra Pacific Industries lands in the northern Sierra Nevada and southern Cascades. California Department of Fish and Game, Sacramento, USA. <http://r1.dfg.ca.gov/portal/FisherTranslocation/tabid/832/Default.aspx> (accessed 13 May 2011).

- Campbell, G.M., J.N. Pauli, J.G. Thomas, and T. McClean. 2010. Accuracy in molecular sexing of martens (*Martes americana* and *M. caurina*) varies among sample types. *Molecular Ecology Resources* 10:1019–1022.
- Campbell, L.A. 2004. Distribution and habitat associations of mammalian carnivores in the central and southern Sierra Nevada. Dissertation, University of California, Davis, USA.
- Campbell, L.A., R.A. Long, and W.J. Zielinski. 2008. Integrating multiple methods to achieve survey objectives. Pages 223–237 in *Noninvasive survey methods for carnivores*. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Campbell, T.M. 1979. Short-term effects of timber harvests on pine marten ecology. Thesis, Colorado State University, Fort Collins, USA.
- Carman, R. 1975. *The complete guide to lures and baits*. Spearman Publishing and Printing, Sutton, Nebraska, USA.
- Carmichael, L.E. 1970. Herpesvirus canis: aspects of pathogenesis and immune response. *Journal of the American Veterinary Medical Association* 156:1714–1721.
- Carpenter, J.W., M.J. Appel, R.C. Erickson, and M.N. Novilla. 1976. Fatal vaccine-induced canine distemper virus infection in black-footed ferrets. *Journal of the American Veterinary Medical Association* 169:961–964.
- Carr, D., J. Bowman, C.J. Kyle, S.M. Tully, E.L. Koen, J.-F. Robitaille, and P.J. Wilson. 2007a. Rapid homogenization of multiple sources: genetic structure of a recolonizing population of fishers. *Journal of Wildlife Management* 71:1853–1861.
- Carr, D., J. Bowman, and P.J. Wilson. 2007b. Density-dependent dispersal suggests a genetic measure of habitat suitability. *Oikos* 116:629–635.

- Carr, S.M., and S.A. Hicks. 1997. Are there two species of marten in North America? Genetic and evolutionary relationships within *Martes*. Pages 15–28 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Carrara, P.E., T.A. Ager, and J.F. Baichtal. 2007. Possible refugia on the Alexander Archipelago of southeastern Alaska during the late Wisconsin glaciations. *Canadian Journal of Earth Sciences* 44:229–244.
- Carrasco, M.A., B.P. Kraatz, E.B. Davis, and A.D. Barnosky. 2005. Miocene Mammalian Mapping Project (MIOMAP). University of California Museum of Paleontology. <http://www.ucmp.berkeley.edu/miomap/>.
- Carroll, C. 2005a. A reanalysis of regional fisher suitability including survey data from commercial forests in the redwood region. Klamath Center for Conservation Research, Final Report to USDA Forest Service, Pacific Southwest Research Station, Albany, California, USA.
- Carroll, C. 2005b. Carnivore restoration in the northeastern U.S. and southeastern Canada: a regional-scale analysis of habitat and population viability for wolf, lynx, and marten (Report 2: Lynx and marten viability analysis). Wildlands Project Special Paper No. 6. Richmond, Vermont, USA.
- Carroll, C. 2007. Interacting effects of climate change, landscape conversion, and harvest on carnivore populations at the range margin: marten and lynx in the northern Appalachians. *Conservation Biology* 21:1092–1104.

- Carroll, C. 2010. Connectivity Analysis Toolkit user manual, version 1.1. Klamath Center for Conservation Research, Orleans, California, USA. Available at www.connectivitytools.org, Accessed January 2011.
- Carroll, C., D.S. Johnson, J.R. Dunk, and W.J. Zielinski. 2010. Hierarchical Bayesian spatial models for multi-species conservation planning and monitoring. *Conservation Biology* 24:1538–1548.
- Carroll, C., R.F. Noss, and P.C. Paquet. 2001. Carnivores as focal species for conservation planning in the Rocky Mountain region. *Ecological Applications* 11:961–980.
- Carroll, C., R.F. Noss, P.C. Paquet, and N.H. Schumaker. 2003a. Use of population viability analysis and reserve selection algorithms in regional conservation plans. *Ecological Applications* 13:1773–1789.
- Carroll, C., M.K. Phillips, N.H. Schumaker, and D.W. Smith. 2003b. Impacts of landscape change on wolf restoration success: planning a reintroduction program based on static and dynamic spatial models. *Conservation Biology* 17:536–548.
- Carroll, C. B. H. McRae, and A. Brookes. 2011. Use of linkage mapping and centrality analysis across habitat gradients to conserve connectivity of gray wolf populations in western North America. *Conservation Biology* Online Early.
- Carroll, C., W.J. Zielinski, and R.F. Noss. 1999. Using presence-absence data to build and test spatial habitat models for the fisher in the Klamath region, U.S.A. *Conservation Biology* 13:1344–1359.
- Caryl, F.M. 2008. Pine marten diet and habitat use within a managed coniferous forest. Dissertation, University of Stirling, Scotland, UK.

- Casper, R.M. 2009. Guidelines for the instrumentation of wild birds and mammals. *Animal Behaviour* 78:1477–1483.
- Castellini, M.A., and L.D. Rea. 1992. The biochemistry of natural fasting at its limits. *Experientia* 48:575–582.
- Castián, E., and I. Mendiola. 1985. Atlas de los mamíferos continentales de Alava, Vizcaya y Guipúzcoa. Pages 269–335 in *Atlas de los vertebrados continentales de Alava, vizcaya y Guipúzcoa*. A. Bea, J.M. Faus, E. Castián, and I. Mendiola, editors. Gobierno Vasco, Vitoria, Spain.
- Caswell, H. 2001. *Matrix population models: construction, analysis, and interpretation*, 2nd edition. Sinauer Associates, Sunderland, Massachusetts, USA.
- Caughley, G. 1994. Directions in conservation biology. *Journal of Animal Ecology* 63:215–244.
- Caughley, G., D. Grice, R. Barker, and B. Brown. 1988. The edge of the range. *Journal of Animal Ecology* 57:771–785.
- Cayan, D., M. Tyree, M. Dettinger, H. Hidalgo, T. Das, E. Maurer, P. Bromirski, N Graham, and R. Flick. 2009. Climate change scenarios and sea level rise estimates for the California 2008 Climate Change Scenarios Assessment. PIER Research Report, CEC-500-2009-014. California Energy Commission, Sacramento, USA.
- Cerbo, A.R.D., M.T. Manfredl, M. Bregoli, N.F. Milone, and M. Cova. 2008. Wild carnivores as source of zoonotic helminths in north-eastern Italy. *Helminthologia* 45:13–19.
- Chapin, T.G., D.J. Harrison, and D.D. Katnik. 1998. Influence of landscape pattern on habitat use by American marten in an industrial forest. *Conservation Biology* 12:1327–1337.
- Chapin, T.G., D.J. Harrison, and D.M. Phillips. 1997a. Seasonal habitat selection by marten in an untrapped forest preserve. *Journal of Wildlife Management* 61:707–717.

- Chapin, T.G., D.M. Phillips, D.J. Harrison, and E.C. York. 1997b. Seasonal selection of habitats by resting martens in Maine. Pages 166–181 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Charlton, K. 1994. The pathogenesis of rabies and other lyssaviral infections: recent studies. *Current Topics in Microbiology and Immunology* 187:95–119.
- Charnov, E.L. 1976. Optimal foraging: the marginal value theorem. *Theoretical Population Biology* 9:129–136.
- Chase, J.M., and M.A. Leibold. 2003. *Ecological niches: linking classical and contemporary approaches*. University of Chicago Press, Illinois, USA.
- Chen, M., M.E. Tewes, K.J. Pei, and L.I. Grassman. 2009. Activity patterns and habitat use of sympatric small carnivores in southern Taiwan. *Mammalia* 73:20–26.
- Chen, X., and P.F. Sullivan. 2003. Single nucleotide polymorphism genotyping: biochemistry, protocol, cost and throughput. *The Pharmacogenomics Journal* 3:77–96.
- Choquenot, D., W.A. Ruscoe, and E. Murphy. 2001. Colonisation of new areas by stoats: time to establishment and requirements for detection. *New Zealand Journal of Ecology* 25:83–88.
- Chow, L. 2009. A survey for fisher in Yosemite National Park 1992–1994. *Transactions of the Western Section of The Wildlife Society* 45:27–44.
- Chowdhury, N., and A.A. Aguirre. 2001. *Helminths of wildlife*. Science Publishers, Enfield, New Hampshire, USA.
- Churchill, S.J., L.A. Herman, M.F. Herman, and J.P. Ludwig. 1981. Final report on the completion of the Michigan marten reintroduction program. *Ecological Research Services*, Iron River, Michigan, USA.

- Ciarniello, L.M., M.S. Boyce, D.R. Seip, and D.C. Heard. 2007. Grizzly bear habitat selection is scale dependent. *Ecological Applications* 17:1424–1440.
- Clark, J.A., and E. Harvey. 2002. Assessing multi-species recovery plans under the Endangered Species Act. *Ecological Applications* 12:655–662.
- Clark, T.W., E. Anderson, C. Douglas, and M. Strickland. 1987. *Martes americana*. *Mammalian Species* 289:1–8.
- Cleaveland, S., T. Mlengeya, M. Kaare, D. Haydon, T. Lembo, M. Laurenson, and C. Packer. 2007. The conservation relevance of epidemiological research into carnivore viral diseases in the Serengeti. *Conservation Biology* 21:612–622.
- Clément, R., and M.C. Saint-Girons. 1982. Le regime de la fouine *Martes foina* Erxleben 1777 dans l'agglomération nantaise et en milieu rural. *Mammalia* 46:550–553.
- Clevenger, A.P. 1993a. Pine marten (*Martes martes* L.) home ranges and activity patterns on the island of Minorca, Spain. *Zeitschrift fur Saugetierkunde* 58:137–143.
- Clevenger A.P. 1993b. Spring and summer food habits and habitat use of the European pine marten (*Martes martes*) on the island of Minorca, Spain. *Journal of Zoology* 229:153–161.
- Clevenger, A.P. 1994a. Feeding ecology of Eurasian pine martens and stone martens in Europe. Pages 326–340 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Clevenger, A.P. 1994b. Habitat characteristics of Eurasian pine martens in an insular Mediterranean environment. *Ecography* 17:257–263.

- Clifford, D.L., R. Woodroffe, D.K. Garcelon, S.F. Timm, and J.A.K. Mazet. 2007. Using pregnancy rates and perinatal mortality to evaluate the success of recovery strategies for endangered island foxes. *Animal Conservation* 10:442–451.
- CLS America. 2011. Argos user's manual. http://www.argos-system.org/documents/userarea/argos_manual_en.pdf (accessed 31 May 2011).
- Cobb, E.W. 2000. Physical condition of American martens, *Martes americana*, from two forest regions in northeastern Ontario. Thesis, Laurentian University, Sudbury, Ontario, Canada.
- Cochran, W.G. 1954. Some methods for strengthening the common χ^2 tests. *Biometrics* 10:417–451.
- Coffin, A.W. 2007. From roadkill to road ecology: a review of the ecological effects of roads. *Journal of Transport Geography* 15:396–406.
- Coffin, K.W., Q.J. Kujala, R.J. Douglass, and L.R. Irby. 1997. Interactions among marten prey availability, vulnerability, and habitat structure. Pages 199–210 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors, Provincial Museum of Alberta, Edmonton, Canada.
- Cohen, J. 1968. Weighted kappa—nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin* 70:213–220.
- Colbert, E.H. 1935. Siwalik mammals in the American Museum of Natural History. *Transactions of the American Philosophical Society, N.S.* 26:1–401.
- Cole, P.J., and G. Proulx. 1994. Leghold trapping: a cause of serious injuries to fishers. *Martes Working Group Newsletter* 2:14–15.

- Cole, R.A., D.S. Lindsay, D.K. Howe, C.L. Roderick, J.P. Dubey, N.J. Thomas, and L.A. Baeten. 2000. Biological and molecular characterizations of *Toxoplasma gondii* strains obtained from southern sea otters (*Enhydra lutris nereis*). *Journal of Parasitology* 86:526–530.
- Collinge, S.K., and C. Ray. 2006. *Disease ecology: community structure and pathogen dynamics*. Oxford University Press, London, UK.
- Collinge, S.K., C. Ray, and J.F. Cully, Jr. 2008. Effects of disease on keystone species, dominant species, and their communities. Pages 129–144 in *Infectious disease ecology: effects of ecosystems on disease and of diseases on ecosystems*. R.S. Ostfeld, F. Keesing, and V.T. Eviner, editors. Princeton University Press, New Jersey, USA.
- Collins, B.M., and S.L. Stephens. 2007. Managing natural wildfires in Sierra Nevada wilderness areas. *Frontiers in Ecology and the Environment* 5:523–527.
- Colpitts, G. 1997. Conservation, science, and Canada's fur farming industry, 1913–1945. *Social History* 30:77–108.
- Committee on the Status of Endangered Wildlife in Canada. 2007. COSEWIC assessment and update status report on the Newfoundland marten (Newfoundland population) *Martes americana atrata* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ontario, Canada. <http://www.vmunix.com/~lmayo/> (accessed 14 January 2011).
- Conover, R.R., and E.T. Linder. 2009. Mud track plots: an economical, noninvasive mammal survey technique. *Southeastern Naturalist* 8:437–444.
- Cook, J.A., E.P. Hoberg, A. Koehler, H. Henttonen, L. Wickström, V. Haukisalmi, K. Galbreath, F. Chernyavski, N. Dokuchaev, A. Lahzuhtkin, S.O. MacDonald, A. Hope, E. Waltari, A. Runck, A. Veitch, R. Popko, E. Jenkins, S. Kutz, and R. Eckerlin. 2005. Beringia:

- intercontinental exchange and diversification of high latitude mammals and their parasites during the Pliocene and Quaternary. *Mammal Study* 30:S33–S44.
- Coombs, A.B., J. Bowman, and C.J. Garroway. 2010. Thermal properties of tree cavities during winter in a northern hardwood forest. *Journal of Wildlife Management* 74:1875–1881.
- Copeland, J.P. 1996. Biology of the wolverine in central Idaho. Thesis, University of Idaho, Moscow, USA.
- Corn, J.G., and M.G. Raphael. 1992. Habitat characteristics at marten subnivean access sites. *Journal of Wildlife Management* 56:442–448.
- Cornell University Animal Health Diagnostic Center. 2010. Animal Health Diagnostic Center—Sample Submission: blood collection guide. <http://diagcenter.vet.cornell.edu/pdf/bloodLabeling.pdf> (accessed January 2010).
- Costa, L. da F., F.A. Rodrigues, G. Travieso, and P.R. Villas Boas. 2007. Characterization of complex networks: a survey of measurements. *Advances in Physics* 56:167–242.
- Cottrell, W. 1978. The fisher (*Martes pennanti*) in Maryland. *Journal of Mammalogy* 59:886.
- Coues, E. 1877. Fur-bearing animals: a monograph of North American Mustelidae. U.S. Department of the Interior, Geological Survey of the Territories. Miscellaneous Publication No. 8, Washington, D.C., USA.
- Coulter, M.W. 1966. Ecology and management of fishers in Maine. Dissertation, Syracuse University, New York, USA.
- Cowan, I.M. 1955. An instance of scabies in the marten (*Martes americana*). *Journal of Wildlife Management* 19:499.
- Cowan, I.M., and R.H. Mackay. 1950. Food habits of the marten in the Rocky Mountain region of Canada. *Canadian Field-Naturalist* 64:100–104.(from Chapter 20)

- Cracraft, J. 1989. Speciation and its ontology: the empirical consequences of alternative species concepts for understanding patterns and processes of differentiation. Pages 28–59 in *Speciation and its consequences*. D. Otte and J.A. Endler, editors. Sinauer Associates, Sunderland, Massachusetts, USA.
- Craig, R.E., and R.A. Borecky. 1976. Metastrongyles (Nematoda: Metastrongyloidea) of fisher (*Martes pennanti*) from Ontario. *Canadian Journal of Zoology* 54:806–807.
- Crane, V.W. 1928. *The southern frontier, 1670–1732*. Duke University Press, Durham, North Carolina, USA.
- Crichton, V. 1948. Registered traplines. *Silva* 4:3–15.
- Criscione, C.D., R. Poulin, and M.S. Blouin. 2005. Molecular ecology of parasites: elucidating ecological and microevolutionary processes. *Molecular Ecology* 14:2247–2257.
- Croiter, R., and J-P. Brugal. 2010. Ecological and evolutionary dynamics of a carnivore community in Europe during the last 3 million years. *Quaternary International* 212:98–108.
- Cunningham, M.W., D.B. Shindle, A.B. Allison, S.P. Terrell, D.G. Mead, and M. Owen. 2009. Canine distemper epizootic in Everglades mink. *Journal of Wildlife Diseases* 45:1150–1157.
- Cushman, S.A., and K. McGarigal. 2004. Patterns in the species-environment relationship depend on both scale and choice of response variables. *Oikos* 105:117–124.
- Cushman, S.A., K.S. McKelvey, J. Hayden, and M.K. Schwartz. 2006. Gene flow in complex landscapes: testing multiple hypotheses with causal modeling. *American Naturalist* 168:486–499.

- Cutler, D.R., T.C. Edwards, Jr., K.H. Beard, A. Cutler, K.T. Hess, J. Gibson, and J.J. Lawler. 2007. Random forests for classification in ecology. *Ecology* 88:2783–2792.
- Czyzewska, T. 1981. Natural endocranial casts of the mustelinae from Weze I near Dzialoszyn, Poland. *Acta Zoologica Cracoviensia* 25:261–270.
- Dacheux, L., F. Larrous, A. Mailles, D. Boisseleau, O. Delmas, C. Biron, C. Bouchier, I. Capek, M. Müller, F. Ilari, T. Lefranc, F. Raffi, M. Goudal, and H. Bourhy. 2009. European bat Lyssavirus transmission among cats, Europe. *Emerging Infectious Diseases* 15:280–284.
- Dagg, A.I. 1972. Research on Canadian mammals. *Canadian Field-Naturalist* 86:217–221.
- Dale, V.H., L.A. Joyce, S. McNulty, R.P. Neilson, M.P. Ayres, M.D. Flannigan, P.J. Hanson, L.C. Irland, A.E. Lugo, C.J. Peterson, D. Simberloff, F.J. Swanson, B.J. Stocks, and M.B. Wotton. 2001. Climate change and forest disturbances. *Bioscience* 51:723–734.
- Dalén, L., A. Götherström, and A. Angerbjörn. 2004. Identifying species from pieces of faeces. *Conservation Genetics* 5:109–111.
- Dalquest, W.W. 1948. *Mammals of Washington*. University of Kansas Publications in Natural History 2:1–444.
- Danby, R.K., and D.S. Slocombe. 2005. Regional ecology, ecosystem geography, and transboundary protected areas in the St. Elias Mountains. *Ecological Applications* 15:405–422.
- Dark, S.J. 1997. A landscape-scale analysis of mammalian carnivore distribution and habitat use by fisher. Thesis, Humboldt State University, Arcata, California, USA.
- Darsie, R.F., and G. Anastos. 1957. Geographical distribution and hosts of *Ixodes texanus* Banks (Acarina, Ixodidae). *Annals of the Entomological Society of America* 50:295–301.

- Daszak, P., A.A. Cunningham, and A.D. Hyatt. 2000. Emerging infectious diseases of wildlife—threats to biodiversity and human health. *Science* 287:443–449.
- Daszak, P., A.A. Cunningham, and A.D. Hyatt. 2001. Anthropogenic environmental change and the emergence of infectious diseases in wildlife. *Acta Tropica* 78:103–116.
- Davie, J.W. 1984. Fisher reintroduction. Project completion report. Alberta Department of Forests, Lands and Wildlife, Edmonton, Canada.
- Davis, F.W., C. Seo, and W.J. Zielinski. 2007. Regional variation in home-range-scale habitat models for fisher (*Martes pennanti*) in California. *Ecological Applications* 17:2195–2213.
- Davis, L. 2003. Stand level habitat use by furbearer species in the Anahim Lake area of British Columbia. Unpublished report to Yun Ka Whu'ten Holdings Ltd. FIA Project 1023002. Williams Lake, British Columbia, Canada.
- Davis, L.R. 2008. Fisher (*Martes pennanti*) habitat ecology in pine dominated habitats of the Chilcotin. Unpublished report for FIA Project Y081290 to the British Columbia Ministry of Environment, Victoria, Canada.
- Davis, L.R. 2009. Denning ecology and habitat use by fisher (*Martes pennanti*) in pine dominated ecosystems of the Chilcotin Plateau. Thesis, Simon Fraser University, Burnaby, British Columbia, Canada.
- Davis, M.H. 1978. Reintroduction of the pine marten into the Nicolet National Forest, Forest County, Wisconsin. Thesis, University of Wisconsin, Stevens Point, USA.
- Davis, M.H. 1983. Post-release movements of introduced marten. *Journal of Wildlife Management* 47:59–66.
- Davis, W.B. 1939. The recent mammals of Idaho. Caxton Printers, Caldwell, Idaho, USA.

- Davison, A., J.D.S. Birks, R.C. Brookes, T.C. Braithwaite, and J.E. Messenger. 2002. On the origin of faeces: morphological *versus* molecular methods for surveying rare carnivores from their scats. *Journal of Zoology* 257:141–143.
- Davison, A., J.D.S. Birks, R.C. Brookes, J.E. Messenger, and J.I. Griffiths. 2001. Mitochondrial phylogeography and population history of pine martens *Martes martes* compared with polecats *Mustela putorius*. *Molecular Ecology* 10:2479–2488.
- Davison, R.P., W.W. Mautz, H.H. Hayes, and J.B. Holter. 1978. The efficiency of food utilization and energy requirements of captive female fishers. *Journal of Wildlife Management* 42:811–821.
- Dawe, N.K., and G. Mosley. 2009. Striving for sustainability. How economic growth is hindering conservation. *The Wildlife Professional* 3:66–67.
- Dawson, N.G. 2008. Vista norteña: tracking historical diversification and contemporary structure in high latitude mesocarnivores. Dissertation, University of New Mexico, Albuquerque, USA.
- DeAngelis, D.L., and L.J. Gross, editors. 1992. Individual-based models and approaches in ecology: populations, communities, and ecosystems. Chapman and Hall, New York, USA.
- de Bruijne, J.J., N. Altszuler, J. Hampshire, T.J. Visser, and W.H.L. Hackeng. 1981. Fat mobilization and plasma hormone levels in fasted dogs. *Metabolism* 30:190–194.
- de Bruijne, J.J., and P. de Koster. 1983. Glycogenolysis in the fasting dog. *Comparative Biochemistry and Physiology B* 75:553–555.
- Deem, S.L., L.H. Spelman, R.A. Yates, and R.J. Montali. 2000. Canine distemper in terrestrial carnivores: a review. *Journal of Zoo and Wildlife Medicine* 31:441–451.

- Dehm, R. 1950. Die raubtiere aus dem Mittel-miocán <Au: ?> (Burdigalium) von Wintershof-West bei Eichstatt in Bayern. Abhandlungen der Bayerischen Akademie de Wissenschaften 58:1–141. (in German)<Au: ?>
- DeKay, J.E. 1842. Zoology of New York, or New York fauna. Part I. Mammalia. W. and A. Whote and J. Visscher, Albany, New York, USA.
- Delibes, M. 1983. Interspecific competition and the habitat of the stone marten (*Martes foina* Erxleben, 1777) in Europe. Acta Zoologica Fennica 174:229–231.
- Delibes, M., and F. Amores. 1986. The stone marten *Martes foina* (Erxleben 1777) from Ibiza (Pitiusuc, Balearic islands). Miscellaneous Zoology (Barcelona) 10:335–345.
- Delort, R. 1986. L'histoire de la fourrure de l'antiquité à nos jours. S. A. Edita, Lausanne, Switzerland.
- D'eon, R.G., R. Serrouya, G. Smith, and C.O. Kochanny. 2002. GPS radiotelemetry error and bias in mountainous terrain. Wildlife Society Bulletin 30:430–439.
- DePue, J.E., and M. Ben-David. 2007. Hair sampling techniques for river otters. Journal of Wildlife Management 71:671–674.
- Deredec, A., and F. Courchamp. 2007. Importance of the Allee effect for reintroductions. Ecoscience 14:440–451.
- Despopoulos, A., and S. Silbernagl. 1986. Color atlas of physiology. Third edition. Georg Thieme Verlag, Stuttgart, Germany.
- de Vos, A. 1951a. Overflow and dispersal of marten and fisher in Ontario. Journal of Wildlife Management 15:164–175.
- de Vos, A. 1951b. Recent findings in fisher and marten ecology and management. Transactions of the North American Wildlife Conference 16:498–505.

- de Vos, A. 1951c. Tracking of fisher and marten. *Sylva* 7:14–18.
- de Vos, A. 1952. The ecology and management of fisher and marten in Ontario. Technical Bulletin, Wildlife Series 1, Ontario Department of Lands and Forests, Toronto, Canada.
- de Vos, A. 1957. Pregnancy and parasites of marten. *Journal of Mammalogy* 38:412.
- Dexin, J., and E.I. Robbins. 2000. Quaternary palynofloras and paleoclimate of the Qaidam Basin, Qinghai Province, Northwestern China. *Palynology* 24:95–112.
- Dhuey, B. 2009. Winter track counts, 1977–2009. Wisconsin Department of Natural Resources, Madison, USA. <http://www.wnrmag.com/org/land/wildlife/harvest/reports/wnttracks.pdf> (accessed 2 April 2010).
- Dick, T.A., B. Kingscote, M.A. Strickland, and C.W. Douglas. 1986. Sylvatic trichinosis in Ontario, Canada. *Journal of Wildlife Diseases* 22:42–47.
- Dick, T.A., and R.D. Leonard. 1979. Helminth parasites of fisher *Martes pennanti* (Erxleben) from Manitoba, Canada. *Journal of Wildlife Diseases* 15:409–412.
- Dick, T.A., and E. Pozio. 2001. *Trichinella* spp. and trichinellosis. Pages 380–396 in *Parasitic diseases of wild mammals*. W.M. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Diefenbach, D.R., C.O. Kochanny, J.K. Vreeland, and B.D. Wallingford. 2003. Evaluation of an expandable, breakaway radiocollar for white-tailed deer fawns. *Wildlife Society Bulletin* 31:756–761.
- Dilworth, T.G. 1974. Status and distribution of fisher and marten in New Brunswick. *Canadian Field-Naturalist* 88:495–498.
- DiStefano, J.J. 1987. Wild furbearer management in the northeastern United States. Pages 1077–1090 in *Wild furbearer management and conservation in North America*. M. Novak, J.A.

- Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Diters, R.W., and S.W. Nielsen. 1978. Toxoplasmosis, distemper, and herpesvirus infection in a skunk (*Mephitis mephitis*). *Journal of Wildlife Diseases* 14:132.
- Divertie, G.D., M.D. Jensen, and J.M. Miles. 1991. Stimulation of lipolysis in humans by physiological hypercortisolemia. *Diabetes* 40:1228–1232.
- Dixon, J.S. 1925. A closed season needed for fisher, marten, and wolverine. *California Fish and Game* 11:23–25.
- Dodds, D.G., and A.M. Martell. 1971. The recent status of the fisher, *Martes pennanti pennanti* (Erleben), in Nova Scotia. *Canadian Field-Naturalist* 85:62–65.
- Dodge, W.E. 1977. Status of the fisher (*Martes pennanti*) in the conterminous United States. Unpublished report to the U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.
- Domingo-Roura, X. 2002. Genetic distinction of marten species by fixation of a microsatellite region. *Journal of Mammalogy* 83:907–912.
- Donadio, E., and S.W. Buskirk. 2006. Diet, morphology, and interspecific killing in Carnivora. *American Naturalist* 167:524–536.
- Douglas, C.W., and M.A. Strickland. 1987. Fisher. Pages 510–529 in *Wild furbearer management and conservation in North America*. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Douglas, R.J., L.G. Fisher, and M. Mair. 1983. Habitat selection and food habits of marten, *Martes americana*, in the Northwest Territories. *Canadian Field-Naturalist* 97:71–74.

- Dragoo, J.W., J.A. Lackey, K.E. Moore, E.P. Lessa, J.A. Cook, and T.L. Yates. 2006. Phylogeography of the deer mouse (*Peromyscus maniculatus*) provides a predictive framework for research on hantaviruses. *Journal of General Virology* 87:1997–2003.
- Drapeau, P., A. Leduc, and Y. Bergeron. 2009. Bridging ecosystem and multiple species approaches for setting conservation targets in managed boreal forest landscapes. Pages 129–160 *in* Setting conservation targets in managed forest landscapes. M.-A. Villard and B.G. Jonnson, editors. Cambridge University Press, UK.
- Drew, G.S. 1995. Winter habitat selection by American marten (*Martes americana*) in Newfoundland: why old growth? Dissertation, Utah State University, Logan, USA.
- Drew, R.E., J.G. Hallett, K.B. Aubry, K.W. Cullings, S.M. Koepf, and W.J. Zielinski. 2003. Conservation genetics of the fisher (*Martes pennanti*) based on mitochondrial DNA sequencing. *Molecular Ecology* 12:51–62.
- Drysdale, C., and R. Charlton. 1988. American marten re-introduction program progress report, Kejimikujik National Park, November 1987–October 1988. Environment Canada, Parks Canada, Natural Resources Conservation, Kejimikujik National Park, New Brunswick, Canada.
- Dubey, J.P., and O.R. Hedstrom. 1993. Meningoencephalitis in mink associated with a *Sarcocystis neurona*-like organism. *Journal of Veterinary Diagnostic Investigation* 5:467–471.
- Dubey, J.P., D.S. Lindsay, and C.A. Speer. 1998. Structures of *Toxoplasma gondii* tachyzoites, bradyzoites, and sporozoites and biology and development of tissue cysts. *Clinical Microbiology Reviews* 11:267.

- Dubey, J.P., K. Odening, W.M. Samuel, M.J. Pybus, and A.A. Kocan. 2001. Toxoplasmosis and related infections. Pages 478–519 in *Parasitic diseases of wild animals*. W.B. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Duenwald, J., J. Holland, J. Gorham, and R. Ott. 1971. Feline panleukopenia: experimental cerebellar hypoplasia produced in neonatal ferrets with live virus vaccine. *Research in Veterinary Science* 12:394–396.
- Dumyahn, J.B., P.A. Zollner, and J.H. Gilbert. 2007. Winter home-range characteristics of American marten (*Martes americana*) in northern Wisconsin. *American Midland Naturalist* 158:382–394.
- Duncan, R.P., D.M. Forsyth, and J. Home. 2007. Testing the metabolic theory of ecology: allometric scaling exponents in mammals. *Ecology* 88:324–333.
- Durden, L.A. 2001. Lice (Phthiraptera). Pages 3–17 in *Parasitic diseases of wild mammals*. W.M. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Durrant, S.D. 1952. *Mammals of Utah: taxonomy and distribution*. University of Kansas Publications in Natural History 6:1–549.
- Dyke, A.S., A. Moore, L. Robertsonson. 2003. Deglaciation of North America. Open File 1574. Geological Survey of Canada.
- Eagle, E.C., J. Choromanski-Norris, and V.B. Kuechle. 1984. Implanting radio transmitters in mink and Franklin's ground squirrels. *Wildlife Society Bulletin* 12:180–184.
- Earle, R.D., L.H. Mastenbrook, and T.F. Reis. 2001. Distribution and abundance of the American marten in northern Michigan. Michigan Department of Natural Resources, Wildlife Report No. 3321.

- Echols, K.N., R. Vaughan, and H.D. Moll. 2004. Evaluation of subcutaneous implants for monitoring American black bear cub survival. *Ursus* 15:172–180.
- Edmonds, M. 2001. The pleasures and pitfalls of written records. Pages 73–99 in *The historical ecology handbook, a restorationist's guide to reference ecosystems*. D. Egan and E.A. Howell, editors. Island Press, Washington, D.C., USA.
- Eizirik, E., N. Yuhki, W.E. Johnson, M. Menotti-Raymond, S.S. Hannah, and S.J. O'Brien. 2003. Molecular genetics and evolution of melanism in the cat family. *Current Biology* 13:448–453.
- Eklund, C.R. 1946. Fur resources management in British Columbia. *Journal of Wildlife Management* 10:29–33.
- El-Badry, A.M., R. Graf, and P.-A. Clavien. 2007. Omega 3—Omega 6: what is right for the liver? *Journal of Hepatology* 47:718–725.
- Elias, S.P., J.W. Witham, and M.L. Hunter. 2006. A cyclic red-backed vole population and seedfall over 22 years in Maine. *Journal of Mammalogy* 87:440–445.
- Ellegren, H. 2008. Sequencing goes 454 and takes large-scale genomics into the wild. *Molecular Ecology* 17:1629–1635.
- Ellis, L.M. 1998. Habitat use pattern of the American marten in the southern Cascade mountains of California. Thesis, Humboldt State University, Arcata, California, USA.
- Elmeros, M., M.M. Birch, A.B. Madsen, H.J. Baagre, and C. Pertoldi. 2008. Skovmørens biologi og levevis in Danmark. Faglig rapport from Danmarks Miljøundersøgelser, Aarhus Universitet nr. 692.

- Emerson, K.C., and R.D. Price. 1974. A new species of *Trichodectes* (Mallophaga: Trichodectidae) from the yellow-throated marten (*Martes flavigula*). Proceedings of the Biological Society of Washington 87:77–81.
- Emmons, E. 1840. Report on the quadrupeds of Massachusetts. Folsom, Wells, and Thurston, Cambridge, Massachusetts, USA.
- Enders, R.K., and J.R. Leekley. 1941. Cyclic changes in the vulva of the marten (*Martes americana*). Anatomical Record 79:1–5.
- Enders, R.K., and O.P. Pearson. 1943. Shortening gestation by inducing early implantation with increased light in the marten. American Fur Breeder January:18.
- Environment Canada. 2009. American marten, Newfoundland population. <http://www.carolynmcdademusic.com/americanmarten.html> (accessed 14 January 2011).
- Erickson, A.B. 1946. Incidence of worm parasites in Minnesota Mustelidae and host lists and keys to North American species. American Midland Naturalist 36:494–509.
- Errington, P.L. 1946. Predation and vertebrate populations. Quarterly Review of Biology 21:144–177, 221–245.
- Errington, P.L. 1956. Factors limiting higher vertebrate populations. Science 124:304–307.
- [ESD] Ecologically Sustainable Development. 1996. A sustainable land use and allocation program for the Ussuri/Wusuli River watershed and adjacent territories (northeastern China and the Russian Far East). Ecologically Sustainable Development, Inc., Far Eastern Branch–Russian Academy of Sciences Institute of Aquatic and Ecological Problems, Far Eastern Branch–Russian Academy of Sciences Pacific Geographical Institute, Heilongjiang Province Territory Society, and National Committee on United States-China Relations. With map: Recommended general land use allocations for

- sustainable development of the Ussuri River watershed and adjacent territories. [Report and map in English, Russian, and Chinese]. Ecologically Sustainable Development, Inc., Elizabethtown, New York, USA.
- Eskreys-Wójcik, M., I. Wierzbowska, A. Zalewski, and H. Okarma. 2008. The land use and daily activity of urban stone marten (*Martes foina*) in Krakow, southern Poland. Page 29 in Abstracts, 26th Mustelid Colloquium, Eötvös Loránd University, Budapest, Hungary.
- Evans, A. 1986. Feasibility study—American marten *Martes americana americana* (Turton) reintroduction to Kejimikujik National Park. Unpublished report to Parks Canada, Nesik Biological Resources, Inc.
- Evans, J.S., and S.A. Cushman. 2009. Gradient modeling of conifer species using random forests. *Landscape Ecology* 24:673–683.
- Ewald, P.W. 1995. The evolution of virulence: a unifying link between parasitology and ecology. *Journal of Parasitology* 81:659–669.
- Excoffier, L., and G. Heckel. 2006. Computer programs for population genetics data analysis: a survival guide. *Nature Reviews Genetics* 7:745–758.
- Fancy S.G., L.F. Pank, D.C. Douglas, C.H. Curby, G.W. Garner, S.C. Amstrup, and W.L. Regelin. 1988. Satellite telemetry: a new tool for wildlife research and management. U.S. Fish and Wildlife Service, Resource Publication No. 172, Washington D.C., USA.
- Farina, A. 1998. Principles and methods in landscape ecology. Chapman & Hall, London.
- Faunmap Working Group. 1994. FAUNMAP: a database documenting late Quaternary distributions of mammal species in the United States. Illinois State Museum, Scientific Papers, Vol. 25, No. 1, Springfield, USA.

- Fecske, D.M. 2003. Distribution and abundance of American marten and cougars in the Black Hills of South Dakota and Wyoming. Dissertation, South Dakota State University, Brookings, USA.
- Fenton, A., and A.B. Pedersen. 2005. Community epidemiology framework for classifying disease threats. *Emerging Infectious Diseases* 11:1815–1821.
- Fernández, N., S. Kramer-Schadt, and H.H. Thulke. 2006. Viability and risk assessment in species restoration: planning reintroductions for the wild boar, a potential disease reservoir. *Ecology and Society* 11:1–17.
- Ferrière, R., F. Sarrazin, S. Legendre, and J.-P. Baron. 1996. Matrix population models applied to viability analysis and conservation: theory and practice with ULM software. *Acta Oecologica* 17:629–656.
- Fiala, A.C.S., S.L. Garman, and A.N. Gray. 2006. Comparison of five canopy cover estimation techniques in the western Oregon Cascades. *Forest Ecology and Management* 232:188–197.
- Fielding, A.H., and J.F. Bell. 1997. A review of methods for the assessment of prediction errors in conservation presence/absence models. *Environmental Conservation* 24:38–49.
- Fisher, J.T., and L. Wilkinson. 2005. The response of mammals to forest fire and timber harvest in the North American boreal forest. *Mammal Review* 35:51–81.
- Flannigan, M.D., B.J. Stocks, and B.M. Wotton. 2000. Climate change and forest fires. *Science of the Total Environment* 262:221–229.

- Flebbe, P.A., and J.A. Herrig. 2000. Patterns of aquatic species imperilment in the southern Appalachians: an evaluation of regional databases. *Environmental Management* 25:681–694.
- Flynn, R.W., and T.V. Schumacher. 2009. Temporal changes in population dynamics of American martens. *Journal of Wildlife Management* 73:1269–1281.
- Fontana, A.J., I.E. Teske, K. Pritchard, and M. Evans. 1999. East Kootenay fisher reintroduction program—final report 1996–1999. Unpublished report to British Columbia Ministry of Environment, Lands, and Parks, Cranbrook, Canada.
- Foran, D.R., K.R. Crooks, and S.C. Minta. 1997a. Species identification from scat: an unambiguous genetic method. *Wildlife Society Bulletin* 25:835–839.
- Foran, D.R., S.C. Minta, and K.S. Heinemeyer. 1997b. DNA-based analysis of hair to identify species and individuals for population research and monitoring. *Wildlife Society Bulletin* 25:840–847.
- Forest Ecosystem Management Assessment Team (FEMAT). 1993. Forest ecosystem management: an ecological, economic, and social assessment. U.S. Government Printing Office, Washington, D.C., USA.
- Foreyt, W.J. 2001. *Veterinary parasitology: reference manual*. Fifth edition. Iowa State University Press, Ames, USA.
- Foreyt, W.J., and J.E. Lagerquist. 1993. Internal parasites from the marten (*Martes americana*) in eastern Washington. *Journal of the Helminthological Society of Washington* 60:72–75.
- Forman, R.T.T., and L.E. Alexander. 1998. Roads and their major ecological effects. *Annual Review of Ecology and Systematics* 29:207–231.

- Forsey, O., J. Bissonette, J. Brazil, K. Curnew, L. Lemon, L. Mayo, I. Thompson, L. Bateman, and L. O'Driscoll. 1995. National recovery plan for the Newfoundland marten. Report No. 14. Recovery of Nationally Endangered Wildlife Committee, Ottawa, Ontario, Canada.
- Fortelius, M., coordinator. 2009. Neogene of the Old World database of fossil mammals (NOW). University of Helsinki. <http://www.helsinki.fi/science/now/> (accessed 31 August 2009).
- Fortelius, M., J. Eronen, L. Liu, D. Pushkina, A. Tesakov, I. Vislobokova, and Z. Zhang. 2006. Late Miocene and Pliocene large land mammals and climatic changes in Eurasia. *Palaeogeography, Palaeoclimatology, Palaeoecology* 238:219–227.
- Fortin, C., and M. Cantin. 1994. The effects of trapping on a newly exploited American marten population. Pages 179–191 *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Fortin, C., and M. Cantin. 2004. Harvest status, reproduction and mortality in a population of American martens in Québec, Canada. Pages 221–234 *in* Martens and fishers in human-altered environments: an international perspective. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Fortin, C., M. Julien, and Y. Leblanc. 1997. Geographic variation of American marten in central and northern Quebec. Pages 29–39 *in* *Martes*: taxonomy, ecology, techniques and management. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Fournier-Chambrillon, C., B. Aasted, A. Perrot, D. Pontier, F. Sauvage, M. Artois, J.M. Cassiede, X. Chauby, A. Dal Molin, C. Simon, and P. Fournier. 2004a. Antibodies to

- Aleutian mink disease parvovirus in free-ranging European mink (*Mustela lutreola*) and other small carnivores from southwestern France. *Journal of Wildlife Diseases* 40:394–402.
- Fournier-Chambrillon, C., P.J. Berny, O. Coiffier, P. Barbedienne, B. Dasse, G. Delas, H. Galineau, A. Mazet, P. Pouzenc, and R. Rosoux. 2004b. Evidence of secondary poisoning of free-ranging riparian mustelids by anticoagulant rodenticides in France: implications for conservation of European mink (*Mustela lutreola*). *Journal of Wildlife Diseases* 40:688.
- Fowler, C.H., and R.T. Golightly. 1994. Fisher and marten survey techniques on the Tahoe National Forest. Final report to the USDA Forest Service. Agreement No. PSW-90-0034CA. Humboldt State University, Arcata, California, USA.
- Fox, J.G., R.C. Pearson, and J.R. Gorham. 1998. Viral diseases. Pages 355–374 in *Biology and diseases of the ferret*. J. G. Fox, editor. Lippincott Williams and Wilkins, Baltimore, Maryland, USA.
- Frair J.L., S.E. Nielsen, E.H. Merrill, S.R. Lele, M.S. Boyce, R.H.M. Munro, G. B. Stenhouse, and H.L. Beyer. 2004. Removing GPS collar bias in habitat selection studies. *Journal of Applied Ecology* 41:201–212.
- Francesca, V., L. Livia, M. Nadia, R. Bernardino, R. Ettore, and P. Fausto. 2004. A simple and rapid PCR-RFLP method to distinguishing *Martes martes* and *Martes foina*. *Conservation Genetics* 5:869–871.
- Francis, G.R., and A.B. Stephenson. 1972. Marten ranges and food habits in Algonquin Provincial Park. Research Report 91, Ontario Ministry of Natural Resources, Canada.

- Frank, R.K. 2001. An outbreak of toxoplasmosis in farmed mink (*Mustela vison*). *Journal of Veterinary Diagnostic Investigation* 13:245–249.
- Frankham, R. 1995. Conservation genetics. *Annual Review in Genetics* 29:305–327.
- Frankham, R. 2005. Genetics and extinction. *Biological Conservation* 126:131–140.
- Franklin, J.F., and C.T. Dyrness. 1988. *Natural vegetation of Oregon and Washington*. Oregon State University Press, Corvallis, USA.
- Fredrickson, L. 1983. Re-introduction of pine marten into the Black Hills of South Dakota, 1977–83. Pages 93–98 *in* *Proceedings of the Midwest Furbearer Workshop*, March 29–31, 1983, Poynette, Wisconsin, USA.
- Fredrickson, L.F. 1989. Pine marten introduction in the Black Hills of South Dakota, 1979–1988. South Dakota Department of Game, Fish and Parks, Completion Report No. 90-10, Pierre, USA.
- Fredrickson, R. 1990. The effects of disease, prey fluctuation, and clear-cutting on American marten in Newfoundland, Canada. Thesis, Utah State University, Logan, USA.
- Freeman, L.C. 1977. A set of measures of centrality based on betweenness. *Sociometry* 40:35–41.
- Fretwell, S.D. 1972. *Populations in a seasonal environment*. Princeton University Press, New Jersey, USA.
- Fretwell, S.D., and H.L. Lucas. 1969. On the territorial behaviour and other factors influencing habitat distribution in birds. *Acta Biotheoretica* 14:16–36.
- Frolich, K., O. Czupalla, L. Haas, J. Hentschke, J. Dedek, and J. Fickel. 2000. Epizootiological investigations of canine distemper virus in free-ranging carnivores from Germany. *Veterinary Microbiology* 74:283–292.

- Frost, H.C., and W.B. Krohn. 1997. Factors affecting the reproductive success of captive female fishers. Pages 100–109 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Frost, H.C., E.C. York, W.B. Krohn, K.D. Elowe, T.A. Decker, S.M. Powell, and T.K. Fuller. 1999. An evaluation of parturition indices in fishers. *Wildlife Society Bulletin* 27:221–230.
- Fryxell, J.M., J.B. Falls, E.A. Falls, and R.J. Brooks. 1998. Long-term dynamics of small mammal populations in Ontario. *Ecology* 79:213–225.
- Fryxell, J.M., J.B. Falls, E.A. Falls, R.J. Brooks, L. Dix, and M.A. Strickland. 1999. Density dependence, prey dependence, and population dynamics of martens in Ontario. *Ecology* 80:1311–1321.
- Fryxell, J., J.B. Falls, E.A. Falls, R.J. Brooks, L. Dix, and M. Strickland. 2001. Harvest dynamics of mustelid carnivores in Ontario, Canada. *Wildlife Biology* 7:151–159.
- Fukushima, H., and M. Gomyoda. 1991. Intestinal carriage of *Yersinia pseudotuberculosis* by wild birds and mammals in Japan. *Applied Environmental Microbiology* 57:1152–1155.
- Fuller, A.K., and D.J. Harrison. 2005. Influence of partial timber harvesting on American martens in north-central Maine. *Journal of Wildlife Management* 69:710–722.
- Fuller, A.K., D.J. Harrison, H.J. Lachowski. 2004. Stand scale effects of partial harvesting and clearcutting on small mammals and forest structure. *Forest Ecology and Management*, Volume 191:373–386.
- Fuller, R.W. 1975. The 1974 fisher trapping season in Vermont. *Vermont's 1975 Game Annual*:23–30.

- Fuller, T.K., E.C. York, S.M. Powell, T.A. Decker, and R.M. DeGraaf. 2001. An evaluation of territory mapping to estimate fisher density. *Canadian Journal of Zoology* 79:1691–1696.
- Fulton, T.L., and C. Strobeck. 2006. Molecular phylogeny of the Arctoidea (Carnivora): effect of missing data on supertree and supermatrix analysis of multiple gene data sets. *Molecular Phylogenetics and Evolution* 41:165–181.
- Furman, D.P., and E.C. Loomis. 1984. *The ticks of California (Acari: Ixodida)*. Volume 25. University of California Press, Berkeley, USA.
- Gabriel, M.W. 2006. Exposure to *Anaplasma phagocytophilum* and ticks in gray foxes (*Urocyon cinereoargenteus*) in northern Humboldt County, California. Thesis, Humboldt State University, Arcata, California, USA.
- Gabriel, M.W., G.M. Wengert, J.E. Foley, J.M. Higley, S. Matthews, and R.N. Brown. 2007. Pathogens associated with fishers (*Martes pennanti*) and sympatric mesocarnivores in California. Final draft report to the U.S. Fish and Wildlife Service for grant #813335G021. U.S. Fish and Wildlife Service, Yreka, California, USA.
- Gabriel, M.W., G.M. Wengert, J.M. Higley, S. Matthews, J.E. Foley, A. Blades, M. Sullivan, and R.N. Brown. 2010. Effectiveness of rapid diagnostic test to access pathogens of fishers and gray foxes. *Journal of Wildlife Diseases* 46:966–970.
- Galbreath, E.C. 1953. A contribution to the Tertiary geology and paleontology of northeastern Colorado. *University of Kansas Paleontological Contributions, Vertebrata* 4:1–120.
- Galbreath, K.E. 2009. Of pikas and parasites: Historical biogeography of an alpine host-parasite assemblage. Dissertation, Cornell University, Ithaca, New York, USA.
- Galbreath, K.E., D.J. Hafner, K.R. Zamudio, and K. Agnew. 2010. Isolation and introgression in the Intermountain West: contrasting gene genealogies reveal the complex biogeographic

- history of the American pika (*Ochotona princeps*). *Journal of Biogeography* 37:344–362.
- Gannon, W.L., R.S. Sikes, and the Animal Care and Use Committee of the American Society of Mammalogists. 2007. Guidelines of the American Society of Mammalogists for the use of wild mammals in research. *Journal of Mammalogy* 88:809–823.
- Gantz, G.F., L.C. Stoddart, F.F. Knowlton. 2006. Accuracy of aerial telemetry locations in mountainous terrain. *Journal of Wildlife Management* 70:1809–1812.
- Garant, Y., and M. Crête. 1999. Prediction of water, fat, and protein content of fisher carcasses. *Wildlife Society Bulletin* 27:403–408.
- Garant, Y., R. Lafond, and R. Courtois. 1996. Analyse du système de suivi de la martre d'Amérique (*Martes americana*) au Québec. Ministère de l'Environnement et de la Faune, Direction de la Faune et des Habitats, Quebec, Canada.
- Gardner, B., J.A. Royle, M.T. Wegan, R.E. Rainbolt, and P.D. Curtis. 2010. Estimating black bear density using DNA data from hair snares. *Journal of Wildlife Management* 74:318–325.
- Garroway, C.J., J. Bowman, D. Carr, and P.J. Wilson. 2008. Applications of graph theory to landscape genetics. *Evolutionary Applications* 1:620–630.
- Garshelis, D.L. 2006. On the allure of noninvasive genetic sampling—putting a face to the name. *Ursus* 17:109–123.
- Gaston, K.J. 2003. The structure and dynamics of geographic ranges. Oxford University Press, UK.
- Gazin, C.L. 1934. Upper Pliocene mustelids from the Snake River Basin of Idaho. *Journal of Mammalogy* 15:137–149.

- Gehring, T.M., and R.K. Swihart. 2003. Body size, niche breadth, and ecologically scaled responses to habitat fragmentation: mammalian predators in an agricultural landscape. *Biological Conservation* 109:283–295.
- Geisel, O.V., H.E. Krampitz, and A. Pospischil. 1979. Zur pathomorphologie eine Hepatozoon infektion bei musteliden. *Berlin Münchener Tierärztlichen Wochenschrift* 92:421–425.
- Genovesi, P., and L. Boitani. 1995. Preliminary data on the social ecology of the stone marten (*Martes foina* Erxleben 1777) in Tuscany (Central Italy). *Hystrix* 7:159–163.
- Genovesi, P., and L. Boitani. 1997a. Day resting sites of the stone marten. *Hystrix* 9:75–78.
- Genovesi, P., and L. Boitani. 1997b. Social ecology of the stone marten in central Italy. Pages 110–120 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Genovesi, P., M. Secchi, and L. Boitani. 1996. Diet of stone martens: an example of ecological flexibility. *Journal of Zoology* 238:545–555.
- Genovesi, P., P. Sinibaldi, and L. Boitani. 1997. Spacing patterns and territoriality of the stone marten. *Canadian Journal of Zoology* 75:1966–1971.
- Gerhold, R.W., E.W. Howerth, and D.S. Lindsay. 2005. *Sarcocystis neurona*-associated meningoencephalitis and description of intramuscular sarcocysts in a fisher (*Martes pennanti*). *Journal of Wildlife Diseases* 41:224–230.
- Ghaffar, A., J. A. Khan, M. Nazir, and M. Akhtar. 2004. First record of *Martes lydekkeri* from Dhok Pathan Formation of Pakistan. *Punjab University Journal of Zoology* 19:97–102.
- Gibbard, P., and T. van Kolfschoten. 2004. The Pleistocene and Holocene epochs. Pages 441–452 in *A geological time scale*. F.M. Gradstein, J. Ogg, G. Smith, and A. Gilbert, editors. Cambridge University Press, UK.

- Gibilisco, C.J. 1994. Distributional dynamics of modern *Martes* in North America. Pages 59–71 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Gidley, J.W. 1927. A true marten from the Madison valley (Miocene) of Montana. *Journal of Mammalogy* 8:239–242.
- Gieck, E.M. 1986. Wisconsin pine marten recovery plan. Wisconsin Department of Natural Resources, Wisconsin Endangered Resources Report 22, Madison, USA.
- Gilbert, J.H., J.L. Wright, D.J. Lauten, and J.R. Probst. 1997. Den and rest-site characteristics of American marten and fisher in northern Wisconsin. Pages 135–145 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Gilbert, J.H., P.A. Zollner, A.K. Green, J.L. Wright, and W.H. Karasov. 2009. Seasonal field metabolic rates of American martens in Wisconsin. *American Midland Naturalist* 162:327–334.
- Gillespie, J.H. 1962. The virus of canine distemper. *Annals of the New York Academy of Sciences* 101:540–547.
- Gilman, N. 2004. Shelter medicine for veterinarians and staff: sanitation in the animal shelter. Blackwell Publishing, Ames, Iowa, USA.
- Gilmer, D.S., L.M. Cowardin, R.L. Duval, L.M. Mechlin, and C.W. Shaiffer. 1981. Procedures for the use of aircraft in wildlife biotelemetry studies. U.S. Fish and Wildlife Resource Publication 140.
- Ginsburg, L. 1999. Order Carnivora. Pages 109–148 in *The Miocene land mammals of Europe*.

- G.E. Rössner and K. Heisseg, editors. Friedrich Pfeil, Munich, Germany.
- Ginsburg, L. 2001. Les faunes de mammifères terrestres du Miocène moyen des Faluns du bassin de Savigne-sur-Lathan (France). *Geodiversitas* 23:381–394.
- Ginsburg, L. 2002. Les carnivores fossils des sables de l'Orléanais. *Annales de Paléontologie* 88:115–146.
- Girvetz, E., C. Zganjar, G. Raber, S.L. Shafer, E.P. Maurer, P. Kareiva, and J.J. Lawler. 2009. Local and regional climate change analysis for science, management, and policy. *PLoS ONE* 4(12):e8320. doi:8310.1371/journal.pone.0008320.
- Godbout, G., and J.-P. Ouellet. 2008. Habitat selection of American marten in a logged landscape at the southern fringe of the boreal forest. *Ecoscience* 15:332–342.
- Goldberg, A.L., M. Tischler, G. DeMartino, and G. Griffin. 1980. Hormonal regulation of protein degradation and synthesis in skeletal muscle. *Federation Proceedings* 39:31–36.
- Goldman, E.A. 1935. New American mustelids of the genera *Martes*, *Gulo*, and *Lutra*. *Proceedings of the Biological Society of Washington* 48:175–186.
- Golightly, R. T., T. F. Penland, W. J. Zielinski, and J. M. Higley. 2006. Fisher diet in the Klamath/North Coast bioregion. Unpublished report, Humboldt State University, Arcata, California, USA.
- Gompper, M.E., R.W. Kays, J.C. Ray, S.D. Lapoint, D.A. Bogan, and J.R. Cryan. 2006. A comparison of noninvasive techniques to survey carnivore communities in northeastern North America. *Wildlife Society Bulletin* 34:1142–1151.
- Gompper, M.E., and E.S. Williams. 1998. Parasite conservation and the black-footed ferret recovery program. *Conservation Biology* 12:730–732.

- Goodman, M.N., P.R. Larsen, M.M. Kaplan, T.T. Aoki, V.R. Young, and N.B. Ruderman. 1980. Starvation in the rat. II. Effect of age and obesity on protein sparing and fuel metabolism. *American Journal of Physiology* 239:E277–E286.
- Goossens, B., L.P. Waits, and P. Taberlet. 1998. Plucked hair samples as a source of DNA: reliability of dinucleotide microsatellite genotyping. *Molecular Ecology* 7:1237–1241.<Au: spelled Goossens in entry for Taberlet et al. 1996; please resolve>
- Gordon, J., and E. Angrick. 1986. Canine parvovirus: environmental effects on infectivity. *American Journal of Veterinary Research* 47:1464.
- Gosse, J.W., R. Cox, and S.W. Avery. 2005. Home-range characteristics and habitat use by American martens in eastern Newfoundland. *Journal of Mammalogy* 86:1156–1163.
- Gosse, J., and B. Hearn. 2005. Seasonal diets of Newfoundland martens, *Martes americana atrata*. *Canadian Field-Naturalist* 119:43–47.
- Goszczyński, J., M. Posłuszny, M. Pilot, and B. Gralak. 2007. Patterns of winter locomotion and foraging in two sympatric marten species: *Martes martes* and *Martes foina*. *Canadian Journal of Zoology* 85:239–249.
- Gotlieb, A. 1927. *Fur truths. The story of furs and the fur business.* Harper & Brothers, New York, USA.
- Graf, R.F., K. Bollmann, W. Suter, and H. Bugmann. 2005. The importance of spatial scale in habitat models: capercaillie in the Swiss Alps. *Landscape Ecology* 20:703–717.
- Graham, R.W., and M.A. Graham. 1994. Late Quaternary distribution of *Martes* in North America. Pages 26–58 in *Martens, sables and fishers: biology and conservation.* S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.

- Grahl-Nielsen, O., M. Andersen, A.E. Derocher, C. Lydersen, Ø. Wiig, and K.M. Kovacs. 2003. Fatty acid composition of the adipose tissue of polar bears and of their prey: ringed seals, bearded seals and harp seals. *Marine Ecology Progress Series* 265:275–282.
- Grakov, N.N. 1981. Lesnaya kunitsa [The pine marten]. Nauka, Moskva:1–109. (in Russian)
- Grand, J., J. Buonaccorsi, S.A. Cushman, C.R. Griffin, and M.C. Neel. 2004. A multiscale landscape approach to predicting bird and moth rarity hotspots in a threatened pitch pine–scrub oak community. *Conservation Biology* 18:1063–1077.
- Grassman, L.I., Jr., A.M. Haines, J.E. Janečka, and M.E. Tewes. 2006a. Activity periods of photo-captured mammals in north central Thailand. *Mammalia* 70:306–309.
- Grassman, L.I., Jr., J.E. Janečka, and M.E. Tewes. 2006b. Ecological separation of *Martes flavigula* with five sympatric mesocarnivores in north-central Thailand. Pages 63–76 in *Martes in carnivore communities*. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Grassman, L.I., Jr., N. Sarataphan, M.E. Tewes, N.J. Silvy, and T. Nakanakrat. 2004. Ticks (Acari: Ixodidae) parasitizing wild carnivores in Phu Khieo Wildlife Sanctuary, Thailand. *Journal of Parasitology* 90:657–659.
- Gray, J.E. 1865. Revision of the genera and species of Mustelidae contained in the British Museum. *Proceedings of the Zoological Society London* 1865:100–154.
- Greeley, W.B. 1925. The relation of geography to timber supply. *Economic Geography* 1:1–14.
- Green, J.S., R.T. Golightly, S.L. Lindsey, and B.R. Leamaster. 1985. Use of radio transmitter implants in wild canids. *Great Basin Naturalist* 45:567–570.
- Green, R.E. 2007. Distribution and habitat associations of forest carnivores and an evaluation of the California Wildlife Habitat Relationships model for the American marten in Sequoia

- and Kings Canyon National Parks. Thesis, Humboldt State University, Arcata, California, USA.
- Greene, C.M., and J.A. Stamps. 2001. Habitat selection at low population densities. *Ecology* 82:2091–2100.
- Grenier, M.B., D.B. McDonald, and S.W. Buskirk. 2007. Rapid population growth of a critically endangered carnivore. *Science* 317:779.
- Griffith, B., J.M. Scott, J.W. Carpenter, and C. Reed. 1989. Translocation as a species conservation tool: status and strategy. *Science* 245:477–480.
- Grilo, C., J. Bissonette, and M. Santos-Reis. 2009. Spatial-temporal patterns in Mediterranean carnivore road casualties: consequences for mitigation. *Biological Conservation* 142:301–313.
- Grimm, V., and S.F. Railsback. 2005. *Individual-based modeling and ecology*. Princeton University Press, New Jersey, USA.
- Grinnell, J., J.S. Dixon, and J.M. Linsdale. 1937. *Fur-bearing mammals of California*. University of California Press, Berkeley, USA.
- Grivert, D., V.L. Sork, R.D. Westfall, and F.W. Davis. 2008. Conserving the evolutionary potential of California valley oak (*Quercus lobata* Nee): a multivariate genetic approach to conservation planning. *Molecular Ecology* 17:139–156.
- Groscolas, R., and J.-P. Robin. 2001. Long-term fasting and re-feeding in penguins. *Comparative Biochemistry and Physiology A* 128:645–655.
- Grove, J.M. 1988. *The Little Ice Age*. Methuen, New York, USA.
- Guerin, C., and P. Mein. 1971. Les principaux gisements de mammifères Miocènes et Pliocènes du domaine rhodanien. Pages 131–170 in *Documents des Laboratoires de Géologie de*

- Lyon HS. Le Néogène rhodanien—Vè congrès du Néogène méditerranéen.
- Gumtow-Farrior, D.L. 1991. Cavity resources in Oregon white oak and Douglas-fir stands in the mid-Willamette Valley, Oregon. Thesis, Oregon State University, Corvallis, USA.
- Gundersen, V.S. 1995. Habitatbruk hos mår vinterstid [Habitat use by pine marten in winter]. Thesis, Agricultural University of Norway, As. (in Norwegian)
- Gusev, O.K. 1971. Restoration of sable in the USSR. *Priroda* (Moscow, USSR) 11:68–74. (in Russian)
- Gynn, D.C., J.R. Davis, and A.F. Von Recum. 1987. Pathological potential of intraperitoneal transmitter implants in beavers. *Journal of Wildlife Management* 51:605–606.
- Haas, G.E., N. Wilson, T.O. Osborne, R.L. Zarnke, L. Johnson, and J.O. Wolff. 1989. Mammal fleas (Siphonaptera) of Alaska and Yukon Territory. *Canadian Journal of Zoology* 67:394–405.
- Hagmeier, E.M. 1955. The genus *Martes* (Mustelidae) in North America: distribution, variation, classification, phylogeny and relationships to Old World forms. Dissertation, University of British Columbia, Vancouver, Canada.
- Hagmeier, E.M. 1956. Distribution of marten and fisher in North America. *Canadian Field-Naturalist* 70:149–168.
- Haley, D. 1975. *Sleek & savage*. Pacific Search, Seattle, Washington, USA.
- Halfpenny, J., R.W. Thompson, S.C. Morse, T. Holden, and P. Rezendes. 1995. Snow tracking. Pages 91–163 in *American marten, fisher, lynx, and wolverine: survey methods for their detection*. W.J. Zielinski and T.E. Kucera, editors. USDA Forest Service, General Technical Report PSW-GTR-157.
- Hall, E.R. 1931. Description of a new mustelid from the late Tertiary of Oregon, with assignment

- of *Parictis primaevus* to the Canidae. *Journal of Mammalogy* 12:156–158.
- Hall, E.R. 1946. *Mammals of Nevada*. University of California Press, Berkeley, USA.
- Hall, E.R. 1981. *The mammals of North America*. Second edition. John Wiley & Sons, New York, USA.
- Hamilton, W.J., Jr., and A.H. Cook. 1955. The biology and management of the fisher in New York. *New York Fish and Game Journal* 2:13–35.
- Hamm, K.A., L.V. Diller, R.R. Klug, and T.L. McDonald. 2003. Spatial independence of fisher (*Martes pennanti*) detections at track plates in northwestern California. *American Midland Naturalist* 149:201–210.
- Hapeman, P.H. 2006. The population genetics of fishers (*Martes pennanti*) across northeastern North America. Dissertation, University of Vermont, Burlington, USA.
- Hapeman, P., E.K. Latch, J.A. Fike, O.E. Rhodes, and C.W. Kilpatrick. 2011. Landscape genetics of fisher (*Martes pennanti*) in the northeast: dispersal barriers and historical influences. *Journal of Heredity* 102:251–259.
- Hardy, C. 1869. *Forest life in Acadie*. Sketches of sport and natural history in the lower provinces of the Canadian dominion. Chapman & Hall, London, England.
- Hardy, M. 1903. A Maine woods walk in sixty-one. *Forest and Stream* 60:263–264.
- Hardy, M. 1910. A fall fur hunt in Maine. *Forest and Stream* 74:928–929.
- Hare, M.L. Nunney, M.K. Schwartz, D.E. Ruzzante, M. Burford, R.S. Waples, K. Ruegg, and F. Palstra. 2011. Understanding and estimating effective population size for practical application in marine species management. *Conservation Biology* 25: DOI: 10.1111/j.1523-1739.2010.01637.x.

- Harger, E.M., and D.F. Switzenberg. 1958. Returning the pine marten to Michigan. Report 2199, Michigan Department of Conservation, Game Division, Lansing, USA.
- Hargis, C.D., J.A. Bissonette, and D.L. Turner. 1999. The influence of forest fragmentation and landscape pattern on American martens. *Journal of Applied Ecology* 36:157–172.
- Hargis, C.D., and D.R. McCullough. 1984. Winter diet and habitat selection of marten in Yosemite National Park. *Journal of Wildlife Management* 48:140–146.
- Hargiss, C.L.M., E.S. DeKeyser, D.R. Kirby, and M.J. Ell. 2008. Regional assessment of wetland plant communities using the index of plant community integrity. *Ecological Indicators* 8:303–307.
- Harington, C.R., 2005. The eastern limit of Beringia: mammoth remains from Banks and Melville Islands, Northwest Territories. *Arctic* 58:361–369.
- Harlow, H.J. 1994. Trade-offs associated with the size and shape of American martens. Pages 391–403 *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Harlow, H.J., and S.W. Buskirk. 1991. Comparative plasma and urine chemistry of fasting white-tailed prairie dogs (*Cynomys leucurus*) and American martens (*Martes americana*): representative fat- and lean-bodied animals. *Physiological Zoology* 64:1262–1278.
- Harlow, H.J., and S.W. Buskirk. 1996. Amino acids in plasma of fasting fat prairie dogs and lean martens. *Journal of Mammalogy* 77:407–411.
- Harper, F. 1961. Land and fresh-water mammals of the Ungava Peninsula. University of Kansas, Lawrence, USA.

- Harris, R.B., S.G. Fancy, D.C. Douglas, G.W. Garner, S.C. Amstrup, T.R. McCabe, and L.F. Pank 1990. Tracking wildlife by satellite: current systems and performance. U.S. Fish and Wildlife Service, Technical Report 30, Washington D.C., USA.
- Harrison, D.J., A.K. Fuller, and G. Proulx, editors. 2004. Martens and fishers (*Martes*) in human-altered environments: an international perspective. Springer Science+Business Media, New York, USA.
- Harrison, R.L. 2006. A comparison of survey methods for detecting bobcats. *Wildlife Society Bulletin* 34:548–552.
- Harvey, D.S., and P.J. Weatherhead. 2006. A test of the hierarchical model of habitat selection using eastern massasauga rattlesnakes (*Sistrurus c. catenatus*). *Biological Conservation* 130:206–216.
- Hastie, T.J., and R.J. Tibshirani. 1990. Generalized additive models. Chapman and Hall/CRC, Boca Raton, Florida, USA.
- Haukisalmi, V., H. Henttonen, and L. Hardman. 2006. Taxonomy, diversity, and zoogeography of *Paranoplocephala* spp. (Cestoda: Anoplocephalidae) in voles and lemmings of Beringia, with a description of three new species. *Biological Journal of the Linnean Society* 89:277–299.
- Haukisalmi, V., L. Wickström, J. Hantula, and H. Henttonen. 2001. Taxonomy, genetic differentiation, and Holarctic biogeography of *Paranoplocephala* spp. (Cestoda: Anoplocephalidae) in collared lemmings (*Dicrostonyx*; Arvicolinae). *Biological Journal of the Linnean Society* 74:171–196.
- Hauptman, T.N. 1979. Spatial and temporal distribution and feeding ecology of the pine marten. Thesis, Idaho State University, Moscow, USA.

- Hawley, V.D., and F.E. Newby. 1957. Marten home ranges and population fluctuations. *Journal of Mammalogy* 38:174–184.
- Haydon, D.T., and J.M. Fryxell. 2003. Using knowledge of recruitment to manage harvesting. *Ecology* 85:78–85.
- Haydon, D.T., D.A. Randall, L. Matthews, D.L. Knobel, L.A. Tallents, M.B. Gravenor, S.D. Williams, J.P. Pollinger, S. Cleaveland, and M.E.J. Woolhouse. 2006. Low-coverage vaccination strategies for the conservation of endangered species. *Nature* 443:692–695.
- Hayhoe, K., D. Cayan, C.B. Field, P.C. Frumhoff, E.P. Maurer, N.L. Miller, S.C. Moser, S.H. Schneider, K.N. Cahill, E.E. Cleland, L. Dale, R. Drapek, R.M. Hanemann, L.S. Kalkstein, J. Lenihan, C.K. Lunch, R.P. Neilson, S.C. Sheridan, and J.H. Verville. 2004. Emissions pathways, climate change, and impacts on California. *Proceedings of the National Academy of Sciences, USA* 101:12422–12427.
- Haywood, D. (aka D.E. Heywood)<Au; spelled Hayward in table 4.4>. 1897. Parmachenee Lake, Maine, notes. *Shooting and Fishing* 22:107.
- Hearn, B.J. 2007. Factors affecting habitat selection and population characteristics of<Au: confirmed online> American marten (*Martes americana atrata*) in Newfoundland. Dissertation, University of Maine, Orono, USA.
- Hearn, B.J., D.J. Harrison, A.K. Fuller, C.G. Lundrigan, and W.J. Curran. 2010. Paradigm shifts in habitat ecology of threatened Newfoundland martens. *Journal of Wildlife Management* 74:719–728.
- Heberlein, T.A. 1991. Changing attitudes and future for wildlife—preserving the sport hunter. *Wildlife Society Bulletin* 19:528–534.

- Heinemeyer, K.S. 1993. Temporal dynamics in the movements, habitat use, activity, and spacing of reintroduced fishers in northwestern Montana. Thesis, University of Montana, Missoula, USA.
- Heinemeyer, K.S. 2002. Translating individual movements into population patterns: American marten in fragmented forested landscapes. Dissertation, University of California, Santa Cruz, USA.
- Heinemeyer, K.S., T.J. Ulizio, and R.L. Harrison. 2008. Natural sign: tracks and scats. Pages 45–74 in *Noninvasive survey methods for carnivores*. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Heinrichs, J.A., D.J. Bender, D.L. Gummer, and N.H. Schumaker. 2010. Assessing critical habitat: evaluating the relative contribution of habitats to population persistence, *Biological Conservation* 143:2229–2237.
- Hejlíček, K., I. Literák, and J. Nezval. 1997. Toxoplasmosis in wild mammals from the Czech Republic. *Journal of Wildlife Diseases* 33:480–485.
- Helldin, J.-O. 1999. Diet, body condition, and reproduction of Eurasian pine martens *Martes martes* during cycles in microtine density. *Ecography* 22:324–339
- Helldin, J.-O. 2000. Population trends and harvest management of pine marten *Martes martes* in Scandinavia. *Wildlife Biology* 6:111–120.
- Helle, E., P. Helle, H. Linden, and M. Wikman. 1996. Wildlife populations in Finland during 1990–1995, based on wildlife triangle data. *Finnish Game Research* 49:12–17.
- Helle, P., and A. Nikula. 1996. Usage of geographic information systems (GIS) in analyses of wildlife triangle data. *Finnish Game Research* 49:26–36.

- Hellstedt, P., J. Sundell, P. Helle, and H. Henttonen. 2006. Large-scale spatial and temporal patterns in population dynamics of the stoat, *Mustela erminea*, and the least weasel, *M. nivalis*, in Finland. *Oikos* 115:286–298.
- Herbst, L. 1991. Pathological and reproductive effects in intraperitoneal telemetry devices on female armadillos. *Journal of Wildlife Management* 55:628–631.
- Herman, T., and K. Fuller. 1974. Observations of the marten, *Martes americana*, in the Mackenzie District, Northwest Territories. *Canadian Field-Naturalist* 88:501–503.
- Herr, J. 2008. Ecology and behaviour of urban stone martens (*Martes foina*) in Luxembourg. Dissertation, University of Sussex, Brighton, UK.
- Herr, J., L. Schley, E. Engel, and T.J. Roper. 2010. Den preferences and denning behaviour in urban stone martens. *Mammalian Biology* 75:138–145.
- Herr, J., L. Schley, and T.J. Roper. 2008. Fate of translocated wild-caught and captive-reared stone martens (*Martes foina*). *European Journal of Wildlife Research* 54:511–514.
- Herr, J., L. Schley, and T.J. Roper. 2009. Socio-spatial organization of urban stone martens. *Journal of Zoology* 277:54–62.
- Herrmann, M. 1994. Habitat use and spatial organization by the stone marten. Pages 122–136 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Herzog, C.J., R.W. Kays, J.C. Ray, M.E. Gompper, W.J. Zielinski, R. Higgins, and M. Tymeson. 2007. Using patterns in track-plate footprints to identify individual fishers. *Journal of Wildlife Management* 71:955–963.

- Hewitt, G.M. 1989. The subdivision of species by hybrid zones. Pages 85–110 *in* Speciation and its consequences. D. Otte and J.A. Endler, editors. Sinauer Associates, Sunderland, Massachusetts, USA.
- Hewitt, G.M. 1996. Some genetic consequences of ice ages, and their role in divergence and speciation. *Biological Journal of the Linnean Society* 58:247–276.
- Hewitt, G.M. 1999. Post-glacial re-colonization of European biota. *Biological Journal of the Linnean Society* 68:87–112.
- Hibbard, W.C., and E.S. Riggs. 1949. Upper Pliocene vertebrates from Keefe Canyon, Meade County, Kansas. *The Geological Society of America Bulletin* 60:829–860.
- Hicks, S.A., and S.M. Carr. 1992. Genetic analysis of a threatened subspecies, the Newfoundland pine marten (*Martes americana atrata*). Pages 287–290 *in* Science and management in protected areas. J.H.M. Willison, S. Boundrup-Nielsen, C. Drysdale, T.B. Herman, N.W.P. Munro, and T.L. Pollock, editors. Elsevier, Amsterdam, The Netherlands.
- Higgins, J.V., M.T. Bryer, M.L. Khoury, and T.W. Firtzhugh. 2005. A freshwater classification approach for biodiversity conservation planning. *Conservation Biology* 19:432–445.
- Higley, J.M., and S.M. Matthews. 2009. Fisher habitat use and population monitoring on the Hoopa Valley Reservation, California. Unpublished final report to U.S. Fish and Wildlife Service, USFWS TWG U-12-NA-1, Yreka, California. Hoopa Tribal Forestry and Wildlife Conservation Society, Hoopa, California, USA.
- Higuchi, H., Y. Shibaev, J. Minton, K. Ozaki, S. Surmach, G. Fujita, K. Momose, Y. Momose, M. Ueta, V. Andronov, N. Mita, and Y. Kanai. 1998. Satellite tracking of the migration of the red-crowned crane *Grus japonensis*. *Ecological Research* 13:273–282.

- Hillyer, E.V., and K.E. Quesenberry, editors. 1997. *Ferrets, rabbits and rodents: clinical medicine and surgery*. Second edition. W.B. Saunders Company, Philadelphia, Pennsylvania, USA.
- Hines, J., J.D. Nichols, J.A. Royle, D.I. MacKenzie, A.M. Gopalaswamy, N.S. Kumar, K.U. Karanth. 2010. Tigers on trails: occupancy modeling for cluster sampling. *Ecological Applications* 20:1456–1466.
- Hobbs, N.T., and T.A. Hanley. 1990. Habitat evaluation: do use/availability data reflect carrying capacity? *Journal of Wildlife Management* 54:515–522.
- Hoberg, E.P. 1997a. Parasite biodiversity and emerging pathogens: a role for systematics in limiting impacts on genetic resources. Pages 71–83 in *Global genetic resources: access, ownership and intellectual property rights*. K.E. Hoaglund and A.Y. Rossman, editors. Association of Systematics Collections, Washington, D.C., USA.
- Hoberg, E.P. 1997b. Phylogeny and historical reconstruction: host-parasite systems as keystones in biogeography and ecology. Pages 243–261 in *Biodiversity II: understanding and protecting our biological resources*. M. Reaka-Kudla, D.E. Wilson and E.O. Wilson, editors. Joseph Henry Press, Washington, D.C., USA.
- Hoberg, E.P. 2005a. Coevolution and biogeography among Nematodirinae (Nematoda: Trichostrongylina), Lagomorpha and Artiodactyla (Mammalia): Exploring determinants of history and structure for the northern fauna across the Holarctic. *Journal of Parasitology* 91:358–369.
- Hoberg, E.P. 2005b. Coevolution in marine systems. Pages 327–339 in *Marine parasitology*. K. Rohde, editor. CSIRO, Sydney, Australia.
- Hoberg, E.P. 2006. Phylogeny of *Taenia*: defining species and origins of human parasites.

- Parasitology International 50:S23–S30.
- Hoberg, E.P. 2010. Invasive processes, mosaics and the structure of helminth parasite faunas. *Revue Scientifique et Technique Office International des Épizooties* 29:255–272.
- Hoberg, E.P., K.B. Aubry, and J.D. Brittell. 1990. Helminth parasitism in martens (*Martes americana*) and ermines (*Mustela erminea*) from Washington, with comments on the distribution of *Trichinella spiralis*. *Journal of Wildlife Diseases* 26:447–452.
- Hoberg, E.P., and D.R. Brooks. 2008. A macroevolutionary mosaic: episodic host-switching, geographic colonization, and diversification in complex host-parasite systems. *Journal of Biogeography* 35:1533–1550.
- Hoberg, E.P., and D.R. Brooks. 2010. Beyond vicariance: integrating taxon pulses, ecological fitting and oscillation in historical biogeography and evolution. Pages 7–20 in *The geography of host-parasite interactions*. S. Morand and B. Krasnov, editors. Oxford University Press, UK.<Au: ?>
- Hoberg, E.P., C.J. Henny, O.R. Hedstrom, and R.A. Grove. 1997. Intestinal helminths of river otters (*Lutra canadensis*) from the Pacific Northwest. *Journal of Parasitology* 83:105–110.
- Hoberg, E.P., S.J. Kutz, K.E. Galbreath, and J. Cook. 2003. Arctic biodiversity: from discovery to faunal baselines—revealing the history of a dynamic ecosystem. *Journal of Parasitology* 89:S84–S95.
- Hoberg, E.P., and S.G. McGee. 1982. Helminth parasitism in raccoons, *Procyon lotor hirtus* Nelson and Goldman, in Saskatchewan. *Canadian Journal of Zoology* 60:53–57.
- Hoberg, E.P., P. Pilitt, and K.E. Galbreath. 2009. Why museums matter: a tale of pinworms (Oxyuroidea: Heteroxynematidae) among pikas (*Ochotona princeps* and *O. collaris*) in

- the American west. *Journal of Parasitology* 95:450–501.
- Hoberg, E.P., L. Polley, E.J. Jenkins, S.J. Kutz, A. Veitch, and B. Elkin. 2008. Integrated approaches and empirical models for investigation of parasitic diseases in northern wildlife. *Emerging Infectious Diseases* 14:10–17.
- Hobson, D.P., G. Proulx, and B.L. Dew. 1989. Initial post-release behavior of marten, *Martes americana*, introduced in Cypress Hills Provincial Park, Saskatchewan. *Canadian Field-Naturalist* 103:398–400.
- Hodgman, T.P., D.J. Harrison, D.D. Katnik, and K.D. Elowe. 1994. Survival in an intensively trapped marten population in Maine. *Journal of Wildlife Management* 58:593–600.
- Hodgman, T.P., D.J. Harrison, D.M. Phillips, and K.D. Elowe. 1997. Survival of American marten in an untrapped forest preserve in Maine. Pages 86–99 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Hodgson, R.G. 1937. Fisher farming. *Fur Trade Journal of Canada*, Toronto, Ontario, Canada.
- Hoffman, J.A. 1983. Progress report, marten re-introduction to Terra Nova National Park. Environment Canada, Parks Canada, Natural Resources Conservation, Terra Nova National Park, Newfoundland, Canada.
- Hoffmann, A.A., and C.M. Sgrò. 2011. Climate change and evolutionary adaptation. *Nature* 470:479–485.
- Holland, G.P. 1985. The fleas of Canada, Alaska and Greenland (Siphonaptera). *Memoirs of the Entomological Society of Canada* 130:1–631.
- Holmes, E.E., J.L. Sabo, and S.V. Viscido. 2007. A statistical approach to quasi-extinction forecasting. *Ecology Letters* 10:1182–1198.

- Holmes, J.C. 1963. Helminth parasites of pine marten, *Martes americana*, from the District of Mackenzie. *Canadian Journal of Zoology* 41:333.
- Holmes, T., and R.A. Powell. 1994. Morphology, ecology, and the evolution of sexual dimorphism in North American *Martes*. Pages 72–84 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Holsinger, K.E., and B.S. Weir. 2009. Genetics in geographically structured populations: defining, estimating, and interpreting F_{ST} . *Nature Review Genetics* 10:639–650.
- Holthausen, R.S., and C.H. Sieg. 2007. Effectiveness of alternative management strategies in meeting conservation objectives. Pages 187–235 in *Conservation of rare or little-known species: biological, social, and economic considerations*. M.G. Raphael and R. Molina, editors. Island Press, Washington, D.C., USA.
- Hooper, J., and R.V. Rea. 2009. The use of an orthotic casting foam as a track-plate medium for wildlife research and monitoring. *Wildlife Biology* 15:106–112.
- Hoover, J.P., C.R. Root, and M.A. Zimmer. 1984. Clinical evaluation of American river otters in a reintroduction study. *Journal of the American Veterinary Medical Association* 185:1321–1326.
- Hopkins, D.M. 1959. Cenozoic history of the Bering Land Bridge. *Science* 129:1519–1528.
- Hosoda, T., H. Suzuki, M. Harada, K. Tsuchiya, S-H. Han, Y.P. Zhang, A.P. Kryukov, and L.K. Lin. 2000. Evolutionary trends of the mitochondrial lineage differentiation in species of genera *Martes* and *Mustela*. *Genes & Genetic Systems* 75:259–267.
- Hosoda, T., H. Suzuki, M.A. Iwasa, M. Hayashida, S. Watanabe, M. Tatara, and K. Tsushiya. 1999. Genetic relationships within and between the Japanese marten *Martes melampus*

- and the sable *M. zibellina*, based on variation of mitochondrial DNA and nuclear ribosomal DNA. *Mammal Study* 24:25–33.
- Hosoda, T., H. Suzuki, K. Tsuchiya, H. Lan, L. Shi, and A.P. Kryukov. 1997. Phylogenetic relationships within *Martes* based on nuclear ribosomal DNA and mitochondrial DNA. Pages 3–14 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Hoving, C.L., D.J. Harrison, W.B. Krohn, R.A. Joseph, and M. O'Brien. 2005. Broad-scale predictors of Canada lynx occurrence in eastern North America. *Journal of Wildlife Management* 69:739–751.
- Hoving, C.L., R.A. Joseph, and W.B. Krohn. 2003. Recent and historical distributions of Canada lynx in Maine and the northeast. *Northeastern Naturalist* 10:363–382.
- Hubbard, C.A. 1947. Fleas of western North America. Iowa State College Press, Ames, USA.
- Hudson, P.J., A.P. Dobson, and K.D. Lafferty. 2006. Is a healthy ecosystem one that is rich in parasites? *Trends in Ecology & Evolution* 21:381–385.
- Hudson, P.J., A. Rizzoli, B.T. Grenfell, H. Heesterbeek, and A.P. Dobson. 2004. The ecology of wildlife diseases. Oxford University Press, London, UK.
- Hughes, S.S. 2009. Noble marten (*Martes americana nobilis*) revisited: its adaptation and extinction. *Journal of Mammalogy* 90:74–92.
- Hunt, R.M., Jr. 1996. Biogeography of the Order Carnivora. Pages 485–541 in *Carnivore behavior, ecology, and evolution*, Vol. 2. J.L. Gittleman, editor. Comstock Publishing Associates, Cornell University Press, Ithaca, New York, USA.
- Hurt, A., B. Davenport, and E. Greene. 2000. Training dogs to distinguish between black bear (*Ursus americanus*) and grizzly bear (*Ursus arctos*) feces. University of Montana Under-

- Graduate Biology Journal. ibscore.dbs.umt.edu/journal/Articles_all/2000/Hurt.htm
(accessed 2 April 2010).
- Idaho Department of Lands. 2006. Idaho Department of Lands GIS. Boise, Idaho, USA.
Available at <http://gis1.idl.idaho.gov/index.htm> (accessed November 2006).
- Imbrie, J., and K.P. Imbrie. 1986. Ice ages: solving the mystery. Harvard University Press,
Cambridge, Massachusetts, USA.
- Ims, R.A. 1995. Movement patterns in relation to landscape structures. Pages 89–109 in *Mosaic
landscapes and ecological processes*. L. Hansson., L. Fajrig, and G. Merriam, editors.
Springer-Verlag, Berlin, Germany.
- Ingram, R. 1973. Wolverine, fisher and marten in central Oregon. Oregon State Game
Commission, Central Region Administration, Report 73-2.
- Inman, R.M., R.R. Wigglesworth, K.H. Inman, M.K. Schwartz, B.L. Brock, and J.D. Rieck.
2004. Wolverine makes extensive movements in the Greater Yellowstone Ecosystem.
Northwest Science 78:261–266.
- Innis, H.A. 1956. The fur trade in Canada. University of Toronto Press, Ontario, Canada.
- Inoue, T., T. Murakami, A.V. Abramov, and R. Masuda. 2010. Mitochondrial DNA control
region variations in the sable *Martes zibellina* of Hokkaido Island and the Eurasian
continent, compared with the Japanese marten *M. melampus*. *Mammal Study* 35:145–
155.
- [IPCC] Intergovernmental Panel on Climate Change. 2007a. Climate change 2007: Impacts,
adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment
Report of the Intergovernmental Panel on Climate Change. Cambridge University Press,
UK.

- [IPCC] Intergovernmental Panel on Climate Change. 2007b. Climate change 2007: The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, UK.
- Irvine, G.W., L.T. Magnus, and B.J. Bradle. 1964. The restocking of fisher in Lake State forests. Transactions of the North American Wildlife and Natural Resources Conference 29:307–315.
- Irving, L., K. Schmidt-Nielsen, and N.S.B. Abrahamsen. 1957. On the melting points of animal fats in cold climates. Physiological Zoölogy 30:93–105.
- Isaac, N.J., S.T. Turvey, B. Collen, C. Waterman, J.E. Baillie. 2007. Mammals on the EDGE: conservation priorities based on threat and phylogeny. PLoS ONE 2:e296.
- Ito, T.Y., N. Miura, B. Lhagvasuren, D. Enkhbileg, S. Takatsuki, A. Tsunekawa, and Z. Jiang. 2006. Satellite tracking of Mongolian gazelles (*Procapra gutturosa*) and habitat shifts in their seasonal ranges. Journal of Zoology 269:291–298.
- [IUCN] International Union for Conservation of Nature. 1987. IUCN position statement on translocation of living organisms: introductions, reintroductions, and re-stocking. Available at: www.iucn.org/themes/ssc/pubs/policy/transe.
- [IUCN] International Union for Conservation of Nature. 1994. Guidelines for protected area management categories. IUCN, Gland, Switzerland and Cambridge, UK.
- [IUCN] International Union for Conservation of Nature. 1995. IUCN/SSC Guidelines for re-introductions. Forty-first meeting of the IUCN Council, Gland, Switzerland. Available at: www.iucn.org/themes/ssc/pubs/policy/reinte.
- [IUCN] International Union for Conservation of Nature. 1998. Guidelines for re-introductions. International Union for Conservation of Nature, Gland, Switzerland.

- Ivan, J.S. 2000. Effectiveness of covered track plates for detecting American marten. Thesis, University of Montana, Missoula, USA.
- Iversen, J.A. 1972. Basal energy metabolism of mustelids. *Journal of Comparative Physiology* 81:341–344.
- Iverson, S.J., K.J. Frost, and L.F. Lowry. 1997. Fatty acid signatures reveal fine scale structure of foraging distribution of harbor seals and their prey in Prince William Sound, Alaska. *Marine Ecology Progress Series* 151:255–271.
- Jacob, G., R. Debrunner, F. Gugerli, B. Schmid, and K. Bollmann. 2010. Field surveys of capercaillie (*Tetrao urogallus*) in the Swiss Alps underestimated local abundance of the species as revealed by genetic analyses of non-invasive samples. *Conservation Genetics* 11:33–44.
- Jacobson, G.L., I.J. Fernandez, P.A. Mayewski, and C.V. Schmitt, editors. 2009. Maine's climate future: an initial assessment. A report for the Governor of Maine. University of Maine, Orono, USA.
- Janeway, C.A., P. Travers, and M. Walport. 2007. *Immunobiology*. Seventh edition. Garland Science, New York, USA.
- Jansman, H., and S. Broekhuizen. 2000. Do the local Dutch pine marten populations form parts of a metapopulation? Potentials of molecular analysis. *Lutra* 43:101–107.
- Jędrzejewski, W., A. Zalewski, and B. Jędrzejewska. 1993. Foraging by pine marten *Martes martes* in relation to food resources in Białowieża National Park, Poland. *Acta Theriologica* 38:405–426.
- Jennings, S.B., N.D. Brown, and D. Sheil. 1999. Assessing forest canopies and understory illumination: canopy closure, canopy cover and other measures. *Forestry* 72:59–73.

- Jensen, A., and B. Jensen. 1970. Husmaaren (*Martes foina*) og maarjagten i Danmark. Danske Vildtundersøgelser, Hefte 15. Vildtbiologisk Station. (in Danish)
- Jensen, O., and G. Schmidt. 2002. American marten monitoring project: final report to Parks Canada, Riding Mountain National Park, Manitoba, Canada.
- Jessup, D.A., M.A. Miller, C. Kreuder-Johnson, P.A. Conrad, M.T. Tinker, J. Estes, and J.A. Mazet. 2007. Sea otters in a dirty ocean. *Journal of the American Veterinary Medical Association* 231:1648–1652.
- Jessup, D., M. Murray, D. Casper, D. Brownstein, and C. Kreuder-Johnson. 2009. Canine distemper vaccination is a safe and useful preventive procedure for southern sea otters (*Enhydra lutra nereis*). *Journal of Zoo and Wildlife Medicine* 40:705–710.
- Jiang, Z., L. Xu, Y. Ma, Y. Wang, Y. Li, and S. Buskirk. 1998. The winter habitat selection of sables in Daxinganling Mountains. *Acta Theriologica Sinica* 18:112–119.
- Johnson, C.A., J.M. Fryxell, I.D. Thompson, and J.A. Baker. 2009. Mortality risk increases with natal dispersal distance in American martens. *Proceedings of the Royal Zoological Society of London B* 276:3361–3367.
- Johnson, C.J., S.E. Nielsen, E.H. Merrill, T.L. McDonald, and M.S. Boyce. 2006. Resource selection functions based on use-availability data: theoretical motivation and evaluation methods. *Journal of Wildlife Management* 70:347–357.
- Johnson, D.H. 1980. The comparison of usage and availability measurements for evaluating resource preference. *Ecology* 61:65–71.
- Johnson, K.N., F. Swanson, M. Herring, and S. Greene, editors. 1999. *Bioregional assessments: science at the crossroads of management and policy*. Island Press, Washington, D.C., USA.

- Johnson, S.A. 1984. Home range, movements, and habitat use of fishers in Wisconsin. Thesis, University of Wisconsin, Stevens Point, USA.
- Johnson, T. 2004. Shelter medicine for veterinarians and staff: the animal shelter building: design and maintenance of a healthy and efficient facility. Blackwell Publishing, Ames, Iowa, USA.
- Jones, A., and M.J. Pybus. 2001. Taeniasis and echinococcosis. Pages 150–192 *in* Parasitic diseases of wild mammals. W.M. Samuel, M.J. Pybus, and A.A. Kocan, editors. Iowa State University Press, Ames, USA.
- Jones, J.L. 1991. Habitat use of fisher in northcentral Idaho. Thesis, University of Idaho, Moscow, USA.
- Jones, J.L., and E.O. Garton. 1994. Selection of successional stages by fishers in north-central Idaho. Pages 377–387 *in* Martens, sables and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Jones, J.W. 1913. Fur-farming in Canada. Committee on Fisheries, Game and Fur-bearing Animals, Canada Commission of Conservation, The Mortimer Co. Ltd., Ottawa, Ontario, Canada.
- Jones, L.L.C., and M.G. Raphael. 1993. Inexpensive camera systems for detecting martens, fishers, and other animals: guidelines for use and standardization. USDA Forest Service, General Technical Report PNW-GTR-306.
- Jones, L.L.C., L.E Ruggiero, and J.K. Swingle. 1991. Ecology of marten in the Pacific Northwest: technique evaluation. Page 532 *in* Wildlife and vegetation of unmanaged Douglas-fir forests. L.F. Ruggiero, K.B. Aubry, A.B. Carey, and M.H. Huff, technical

- coordinators. USDA Forest Service, General Technical Report PNW-GTR-285.
- Jones, T.C., R.D. Hunt, and N.W. King. 1997. Diseases due to Protozoa. Pages 549–600 *in* Veterinary Pathology. Williams and Wilkins, Baltimore, Maryland, USA.
- Jones, Y.L., S.D. Fitzgerald, J.G. Sikarske, A. Murphy, N. Grosjean, and M. Kiupel. 2006. Toxoplasmosis in a free-ranging mink. *Journal of Wildlife Diseases* 42:865–869.
- Jordan, M.J. 2007. Fisher ecology in the Sierra National Forest, California. Dissertation, University of California, Berkeley, USA.
- Jordan, M., J. Higley, S. Matthews, O. Rhodes, M. Schwartz, R. Barrett, and P. Palsboll. 2007. Development of 22 new microsatellite loci for fishers (*Martes pennanti*) with variability results from across their range. *Molecular Ecology Notes* 2007:1–5.
- Kadosaki. 1981. Zoology, natural history and cultural history of the Noppero Hill and its environs, Hokkaido, Japan. *Research Bulletin of the Historical Museum of Hokkaido* 6:25–38. (in Japanese)
- Kaloyianni, M., and R.A. Freedland. 1990. Effect of diabetes and time after *in vivo* insulin administration on ketogenesis and gluconeogenesis in isolated rat hepatocytes. *International Journal of Biochemistry* 22:159–164.
- Kamiya, H., and K. Ishigaki. 1972. Helminths of mustelidae in Hokkaido. *Japanese Journal of Veterinary Research* 20:117–128.
- Karanth, K.P. 2003. Evolution of disjunct distributions among wet-zone species of the Indian subcontinent: testing various hypotheses using a phylogenetic approach. *Current Science* 85:1276–1283.
- Karmanova, E.M. 1986. Diocetophymidea of animals and man and diseases caused by them. *Fundamentals of nematodology*, Vol. 20. English translation. Amerind Publishing, New

- York, USA.
- Karmona, J. 2007. Unduly constrained: implementing conservation areas under British Columbia's Forest and Range Practices Act. Thesis, University of British Columbia, Vancouver, Canada.
- Karpenko, S.V., N.E. Dokuchaev, and E.P. Hoberg. 2007. Nearctic shrews, *Sorex* spp., as paratenic hosts of *Soboliphyme baturini* (Nematoda: Soboliphymidae). *Comparative Parasitology* 74:81–87.
- Kauffman, J. 1996. Parasitic infections of domestic animals: a diagnostic manual. Birkhauser, Basel, Germany.
- Kaya, T., D. Geraads, and V. Tuna. 2005. A new Late Miocene mammalian fauna in the Karaburun Peninsula (W Turkey). *Neues Jahrbuch für Geologie und Palaeontologie, Abhandlungen* 236:321–349.
- Kays, R.W., B. Kranstauber, P. Jansen, C. Carbone, M. Rowcliffe, T. Fountain, and S. Tilak. 2009. Camera traps as sensor networks for monitoring animal communities. The 34th Annual IEEE Conference on Local Computer Networks, Zurich, Switzerland.
- Kays, R.W., and K.M. Slauson. 2008. Remote cameras. Pages 110–140 *in* Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Keating, K.A., W.G. Brewster, and C.H. Key. 1991. Satellite telemetry—performance of animal-tracking systems. *Journal of Wildlife Management* 55:160–171.
- Keay, F.E. 1901. The animals our fathers found in New England. *New England Magazine* 24:535–545.
- Kebbe, C.E. 1961a. Return of the fisher. *Oregon State Game Commission Bulletin* 16:3–7.

- Kebbe, C.E. 1961b. Transplanting fisher. Western Association of State Game and Fish Commissioners 41:165–167.
- Keith, D.A., H.R. Akçakaya, W. Thuiller, G.F. Midgely, R.G. Pearson, S.J. Phillips, H.M. Regan, M.B. Araújo, and T.G. Rebelo. 2008. Predicting extinction risks under climate change: coupling stochastic population models with dynamic bioclimatic habitat models. Biological Letters 4:560–563.
- Kelly, D.W., R.A. Paterson, C.R. Townsend, R. Poulin, and D.M. Tompkins. 2009a. Parasite spillback: a neglected concept in invasion ecology? Ecology 90:2047–2056.
- Kelly, G.M. 1977. Fisher (*Martes pennanti*) biology in the White Mountain National Forest and adjacent areas. Dissertation, University of Massachusetts, Amherst, USA.
- Kelly, J.R. 2005. Recent distribution and population characteristics of American marten in New Hampshire and potential factors affecting their occurrence. Thesis, University of Massachusetts, Amherst, USA.
- Kelly, J.R., T.K. Fuller, and J.J. Kanter. 2009b. Records of recovering American marten, *Martes americana*, in New Hampshire. Canadian Field-Naturalist 123:1–6.
- Kelly, M.J. 2008. Design, evaluate, refine: camera trap studies for elusive species. Animal Conservation 11:182–184.
- Kendall, K.C., and K.S. McKelvey. 2008. Hair collection. Pages 141–182 in Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Kendall, K.C., J.B. Stetz, D.A. Roon, L.P. Waits, J.B. Boulanger, and D. Paetkau. 2008. Grizzly bear density in Glacier National Park, Montana. Journal of Wildlife Management 72:1693–1705.

- Kenward, R.E. 2001. A manual for wildlife radio tagging. Academic Press, San Diego, California, USA.
- Kenyon, A., B. Kenyon, and E. Hahn. 1978. Protides of the Mustelidae: immunoresponse of mustelids to Aleutian mink disease virus. *American Journal of Veterinary Research* 39:1011–1015.
- Kerley, L.L., and G.P. Salkina. 2007. Using scent-matching dogs to identify individual Amur tigers from scat. *Wildlife Society Bulletin* 71:1341–1356.
- Kerry, M., J.A. Royle, and H.Schmidt. 2005. Modeling avian abundance from replicated counts using binomial mixture models. *Ecological Applications* 15:1450–1461.
- Kilham, L., G. Margolis, and E.D. Colby. 1967. Congenital infections of cats and ferrets by feline panleukopenia virus manifested by cerebellar hypoplasia. *Laboratory Investigation* 17:465–480.
- Kimber, K.R., G.V. Kollias, and E.J. Dubovi. 2000. Serologic survey of selected viral agents in recently captured wild North American river otters (*Lontra canadensis*). *Journal of Zoo and Wildlife Medicine* 31:168–175.
- King, A.W. 1997. Hierarchy theory: a guide to system structure for wildlife biologists. Pages 185–212 *in* *Wildlife and landscape ecology: effects of pattern and scale*. J.A. Bissonette, editor. Springer-Verlag, New York, USA.
- King, C.M., and R.L. Edgar. 1977. Techniques for trapping and tracking stoats (*Mustela erminea*): a review, and a new system. *New Zealand Journal of Zoology* 4:193–212.
- Kingscote, B.F. 1986. Leptospirosis in red foxes in Ontario. *Journal of Wildlife Disease* 22:475–478.
- Kirk, T.A., and W.J. Zielinski. 2009. Developing and testing a landscape habitat suitability

- model for the American marten (*Martes americana*) in the Cascades mountains of California. *Landscape Ecology* 24:759–773.
- Kirsch, P.E., S.J. Iverson, and W.D. Bowen. 2000. Effect of a low-fat diet on body composition and blubber fatty acids of captive juvenile harp seals (*Phoca groenlandica*). *Physiological and Biochemical Zoology* 73:45–59.
- Klopfleisch, R., P.U. Wolf, C. Wolf, T. Harder, E. Starick, M. Niebuhr, T.C. Mettenleiter, and J.P. Teifke. 2007. Encephalitis in a stone marten (*Martes foina*) after natural infection with highly pathogenic avian influenza virus subtype H5N1. *Journal of Comparative Pathology* 137:155–159.
- Klug, R.R. 1997. Occurrence of the Pacific fisher (*Martes pennanti*) in the redwood zone of northern California and the habitat attributes associated with their detections. Thesis, Humboldt State University, Arcata, California, USA.
- Knaus, B.J., R. Cronn, A. Liston, K. Pilgrim, and M.K. Schwartz. 2011. Mitochondrial genome sequences illuminate maternal lineages of conservation concern in a rare carnivore. *BMC Ecology* 11: doi:10.1186/1472-6785-11-10.
- Knobel, D., A. Fooks, S. Brookes, D. Randall, S. Williams, K. Argaw, F. Shiferaw, L. Tallents, and M. Laurenson. 2007. Trapping and vaccination of endangered Ethiopian wolves to control an outbreak of rabies. *Journal of Applied Ecology* 45:109–116.
- Kochanny, C.O., G.D. Delgiudice, and J. Fieberg. 2009. Comparing global positioning system and very high frequency telemetry home ranges of white-tailed deer. *Journal of Wildlife Management* 73:779–787.
- Koehler, A.V.A. 2006. Systematics, phylogeography, distribution and lifecycle of *Soboliphyme baturini*. Unpublished MSc. Thesis, University of New Mexico, Albuquerque, USA.

- Koehler, A.V.A., E.P. Hoberg, N.E. Dokuchaev, and J.A. Cook. 2007. Geographic and host range of the nematode *Soboliphyme baturini* across Beringia. *Journal of Parasitology* 93:1070–1083.
- Koehler, A.V.A., E.P. Hoberg, N.E. Dokuchaev, N.A. Trabenkova, J.S. Whitman, D.W. Nagorsen, and J.A. Cook. 2009. Phylogeography of a Holarctic nematode, *Soboliphyme baturini*, among mustelids: climate change episodic colonization, and diversification in a complex host-parasite system. *Biological Journal of the Linnean Society* 96:651–663.
- Koehler, G.M., P.B. Hall, M.H. Norton, and D.J. Pierce. 2001. Implant- versus collar-transmitter use on black bears. *Wildlife Society Bulletin* 29:600–605.
- Koehler, G.M., and M.G. Hornocker. 1977. Fire effects on marten habitat in the Selway-Bitterroot Wilderness. *Journal of Wildlife Management* 41:500–505.
- Koehler, G.M., W.R. Moore, and A.R. Taylor. 1975. Preserving the pine marten. *Management guidelines for western forests. Western Wildlands* 2:31–36.
- Koen, E. 2005. Home range, population density, habitat preference, and survival of fishers (*Martes pennanti*) in eastern Ontario. Thesis, Carleton Institute of Biology, Ottawa, Ontario, Canada.
- Koen, E.L., J. Bowman, and C.S. Findlay. 2007. Fisher survival in eastern Ontario. *Journal of Wildlife Management* 71:1214–1219.
- Koepfli, K.-P., K.A. Deere, G.J. Slater, C. Begg, K. Begg, L. Grassman, M. Lucherini, G. Veron, and R.K. Wayne. 2008. Multigene phylogeny of the Mustelidae: resolving relationships tempo and biogeographic history of a mammalian adaptive radiation. *BMC Biology* 6:10.

- Koepfli, K.-P., and R.K. Wayne. 2003. Type ISTS markers are more informative than cytochrome b in phylogenetic reconstruction of the Mustelidae (Mammalia: Carnivora). *Systematic Biology* 52:571–593.
- Kohn, B.E. 1991. Minnesota pine martens introduced to Wisconsin. *Niche—Newsletter of the Wisconsin Bureau of Endangered Resources* 5:4.
- Kohn, B.E., and R.G. Eckstein. 1987. Status of marten in Wisconsin, 1985. Wisconsin Department of Natural Resources, Research Report 143, Madison, USA.
- Kohn, M.H., and R.K. Wayne. 1997. Facts from feces revisited. *Trends in Ecology & Evolution* 12:223–227.
- Kontrimavichus, V.L. 1985. Helminths of mustelids and trends in their evolution. English Translation. Amerind Publishing Company, New Delhi, India.
- Kopylov, I.P. 1958. The sable. Pages 20–33 *in* Guidelines for the resettlement of fur-bearing animals. N. P. Lavrov, editor. Centrosoyuz Publishing House, Moscow, USSR. (in Russian)
- Korhonen, K., P. Niemelä, and P. Siirilä. 2001. Temperament and reproductive performance in farmed sable. *Agricultural and Food Science in Finland* 10:91–98.
- Koubek, P., V. Baru, and B. Koubkova. 2004. *Troglostrongylus acutum* (Digenea) from carnivores in the Czech Republic. *Helminthologia* 41:25–31.
- Koufos, G.D. 2006. The Neogene mammal localities of Greece: faunas, chronology, and biostratigraphy. *Hellenistic Journal of Geosciences* 4:183–214.
- Koufos, G.D. 2008. Carnivores from the early/middle Miocene locality of Antonios (Chalkidiki, Macedonia, Greece). *Geobios* 41:365–380.
- Koufos, G.D., D.S. Kostopoulos, and T.D. Vlachou. 2005. Neogene/Quaternary mammalian

- migrations in eastern Mediterranean. *Belgian Journal of Zoology* 135:181–190.
- Koussoroplis, A.-M., C. Lemarchand, A. Bec, C. Desvillettes, C. Amblard, C. Fournier, P. Berny, and G. Bourdier. 2008. From aquatic to terrestrial food webs: decrease of the docosaehaenoic acid/linoleic acid ratio. *Lipids* 43:461–466.
- Kovach, A.I., and R.A. Powell. 2003. Reproductive success of male black bears. *Canadian Journal of Zoology* 81:1257–1268.
- Kozlov, V. 2002. Russian fur industry struggles for survival. *The Russia Journal*, Issue 149, <http://www.russiajournal.com/node/5901> (accessed 21 March 2011).
- Kranz, A., A. Tikhonov, J. Conroy, P. Cavallini, J. Herrero, M. Stubbe, T. Maran, and A. Abramov. 2008. *Martes martes*. IUCN Red List of Threatened Species. Version 2010.4. www.iucnredlist.org (accessed 21 April 2011).
- Kraus, T. 2005. Ovulation rates in harvested fisher, *Martes pennanti*, populations of central Ontario, with special reference to habitat conditions. Thesis, Laurentian University, Sudbury, Ontario, Canada.
- Krebs, J.R. 1978. Optimal foraging: decision rules for predators. Pages 23–63 in J.R. Krebs and N.B. Davies, editors. *Behavioural ecology: an evolutionary approach*. Sinauer Associates Sunderland, Massachusetts, USA.
- Krebs, J., S. Williams, J. Smith, C. Rupprecht, and J. Childs. 2003. Rabies among infrequently reported mammalian carnivores in the United States, 1960–2000. *Journal of Wildlife Diseases* 39:253–261.
- Kreuder, C., M. Miller, D. Jessup, L. Lowenstine, M. Harris, J. Ames, T. Carpenter, P. Conrad, and J. Mazet. 2003. Patterns of mortality in southern sea otters (*Enhydra lutris nereis*) from 1998–2001. *Journal of Wildlife Diseases* 39:495–509.

- Krohn, W.B. 2005. A fall fur-hunt from Maine to New Brunswick, Canada: the 1858 journal of Manly Hardy. *Northeastern Naturalist* 12:509–540.
- Krohn, W.B., S.M. Arthur, and T.F. Paragi. 1994. Mortality and vulnerability of a heavily trapped fisher population. Pages 137–145 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Krohn, W.B., K.D. Elowe, and R.B. Boone. 1995. Relations among fishers, snow, and martens: development and evaluation of two hypotheses. *Forestry Chronicle* 71:97–105.
- Krohn, W.B., and C.L. Hoving. 2010. Early Maine wildlife: historical accounts of Canada lynx, moose, mountain lion, white-tailed deer, wolverine, wolves, and woodland caribou, 1603–1930. University of Maine Press, Orono, USA.
- Krohn, W.B., C. Hoving, D. Harrison, D. Philips, and H. Frost. 2004. *Martes* foot-loading and snowfall patterns in eastern North America: implications to broad-scale distributions and interactions of mesocarnivores. Page 115–131 in *Martens and fishers (Martes) in human-altered landscapes: an international perspective*. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Krohn, W.B., W.J. Zielinski, and R.B. Boone. 1997. Relations among fishers, snow, and martens in California: results from small-scale spatial comparisons. Pages 211–232 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Kruger, H.H. 1990. Home ranges and patterns of distribution of stone and pine martens. *Transactions of the XIXth Congress of the International Union of Game Biologists*, Trondheim, Norway.

- Kucera, T.E., A.M. Soukkala, and W.J. Zielinski. 1995. Photographic bait stations. Pages 25–65 in American marten, fisher, lynx, and wolverine: survey methods for their detection. W.J. Zielinski, and T.E. Kucera, editors. USDA Forest Service, General Technical Report PSW-GTR-157.
- Kuehn, D.W., and W.E. Berg. 1981. Use of radiographs to identify age-classes of fisher. *Journal of Wildlife Management* 45:1009–1010.
- Kukekova, A.V., L.N. Trut, I.N. Oskina, A.V. Kharlamova, S.G. Shikhevich, E.F. Kirkness, G.D. Aguirre, and G.M. Acland. 2004. A marker set for construction of a genetic map of the silver fox (*Vulpes vulpes*). *Journal of Heredity* 95:185–194.
- Kurki, S., A. Nikula, P. Helle, and H. Lindén. 1998. Abundances of red fox and pine marten in relation to the composition of boreal forest landscapes. *Journal of Animal Ecology* 67:874–886.
- Kurose, N., R. Masuda, B. Siritroonrat, and M.C. Yoshido. 1999. Intraspecific variation of mitochondrial cytochrome *b* gene sequences of the Japanese marten *Martes melampus* and the sable *Martes zibellina* (Mustelidae, Carnivora, Mammalia) in Japan. *Zoological Science* 16:693–700.
- Kurose, N., R. Masuda, and M. Tataru. 2005. Fecal DNA analysis for identifying species and sex of sympatric carnivores: A noninvasive method for conservation on the Tsushima islands, Japan. *Journal of Heredity* 96:688–697.
- Kurtén, B. 1968. Pleistocene mammals of Europe. Aldine Publishing, New York, USA.
- Kyle, C.J., C.S. Davis, and C. Strobeck. 2000. Microsatellite analysis of North American pine marten (*Martes americana*) populations from the Yukon and Northwest Territories. *Canadian Journal of Zoology* 78:1150–1157.

- Kyle, C.J., A. Davison, and C. Strobeck. 2003. Genetic structure of European pine martens (*Martes martes*), and evidence for introgression with *M. americana* in England. *Conservation Genetics* 4:179–188.
- Kyle, C.J., J.F. Robitaille, and C. Strobeck. 2001. Genetic variation and structure of fisher (*Martes pennanti*) populations across North America. *Molecular Ecology* 10:2341–2347.
- Kyle, C.J., and C. Strobeck. 2003. Genetic homogeneity of Canadian mainland marten populations underscores the distinctiveness of Newfoundland pine martens (*Martes americana atrata*). *Canadian Journal of Zoology* 81:57–66.
- Labrid, M. 1986. La Martre (*Martes martes* Linnaeus, 1758). In *Encyclopédie des carnivores de France*. Volume 9. Société Française pour l'Etude et la Protection des Mammifères, Paris, France.
- Labrid, M. 1987. La martre *Martes martes* et la fouine *Martes foina*: utilisation de l'espace et du temps et régime alimentaire de deux Mustélidés sympatriques en milieu forestier. Dissertation, University of Paris, France.
- Lachat-Feller, N. 1993a. Eco-éthologie de la fouine (*Martes foina* Erxleben, 1777) dans le Jura Suisse. Dissertation, Université de Neuchâtel, Switzerland.
- Lachat-Feller, N. 1993b. Régime alimentaire de la fouine (*Martes foina*) durant un cycle de pullulation du campagnol terrestre (*Arvicola terrestris scherman*) dans le Jura Suisse. *Mammalian Biology* 58:275–280.
- Lacy, R.C., M. Borbat, and J.P. Pollak. 2005. VORTEX: a stochastic simulation of the extinction process. Version 9.50. Chicago Zoological Society, Brookfield, Illinois, USA.
- Lacy, R.C., and T.W. Clark. 1993. Simulation modeling of American marten (*Martes americana*) populations: vulnerability to extinction. *Great Basin Naturalist* 53:282–292.

- Lafferty, K.D. 2008. Effects of disease on community interactions and food web structure. Pages 205–222 *in* Infectious disease ecology: effects of ecosystems on disease and of diseases on ecosystems. R.S. Ostfeld, F.Keesing, and V.T. Eviner, editors. Princeton University Press, New Jersey, USA.
- Lafferty, K.D. 2009. The ecology of climate change and infectious diseases. *Ecology* 90:888–900.
- Lafond, R. 1990. Analyse du système de suivi des animaux à fourrure. Québec Ministère du Loisir, de la Chasse et de la Pêche, Direction de la Gestion des Espèces et des Habitats, Quebec, Canada.
- Laliberte, A.S., and W.J. Ripple. 2004. Range contraction of North American carnivores and ungulates. *Bioscience* 54:123–138.
- Lamberson, R.H., B.R. Noon, C. Voss, and K.S. McKelvey. 1994. Reserve design for territorial species: the effects of patch size and spacing on the viability of the northern spotted owl. *Conservation Biology* 8:185–195.
- Landram, M. 2002. Canopy cover study—implications for Sierra Nevada Forest Plan Amendment implementation. Unpublished report. USDA Forest Service, Pacific Southwest Region, Vallejo, California.
- Lane, R.S. 1984. New host records of ticks (Acari: Argasidae and Ixodidae) parasitizing wildlife in California and a case of tick paralysis in a deer. *California Fish and Game* 70:11–17.
- Langlois, I. 2005. Viral diseases of ferrets. *Veterinary Clinics of North America: Exotic Animal Practice* 8:139–160.
- Latimer, A.M., S.Wu, A.E. Gelfand, and J.A. Silander, Jr. 2006. Building statistical models to analyze species distributions. *Ecological Applications* 16:33–50.

- Latour, P.B., N. Maclean, K.G. Poole. 1994. Movements of martens, *Martes americana*, in burned and unburned taiga in the Mackenzie Valley, Northwest Territories. *Canadian Field-Naturalist* 108:351–354.
- Lawler, J.J., S.L. Shafer, D. White, P. Karieva, E.P. Maurer, A.R. Blaustein, and P.J. Bartlein. 2009. Projected climate-induced faunal change in the Western Hemisphere. *Ecology* 90:588–597.
- Lawler, J.J., D. White, R.P. Neilson, and A.R. Blaustein. 2006. Predicting climate-induced range shifts: model differences and model reliability. *Global Change Biology* 12:1568–1584.
- Lawton, J.H. 1993. Range, population abundance and conservation. *Trends in Ecology & Evolution* 8:409–413.
- Laymon, S.A., and R.H. Barrett. 1986. Developing and testing habitat-capability models: pitfalls and recommendations. Pages 87–91 *in* *Wildlife 2000: modeling habitat relationships of terrestrial vertebrates*. J. Verner, M.L. Morrison, and C.J. Ralph, editors. University of Wisconsin Press, Madison, USA.
- Lefkovitch, L.P. 1965. The study of population growth in organisms grouped by stages. *Biometrika* 35:183–212.
- Leiby, P.D., and W.G. Dyer. 1971. Cyclophyllidean tapeworms of wild carnivora. Pages 174–234 *in* *Parasitic diseases of wild mammals*. J.W. Davis and R.C. Anderson, editors. Iowa State University Press, Ames, USA.
- Le Maho, Y., H. Vu Van Kha, H. Koubi, G. Dewasmes, J. Girard, P. Ferré, and M. Cagnard. 1981. Body composition, energy expenditure, and plasma metabolites in long-term fasting geese. *American Journal of Physiology* 241:E342–E354.

- Lenihan, J.M., D. Bachelet, R.P. Neilson, and R. Drapek. 2008. Response of vegetation distribution, ecosystem productivity, and fire to climate change scenarios for California. *Climatic Change* 87:S215–S230.
- Lenihan, J.M., R. Drapek, D. Blachelet, and R.P. Neilson. 2003a. Climate change effects on vegetation distribution, carbon, and fire in California. *Ecological Applications* 13:1667–1681.
- Lenihan, J.M., R. Drapek, R.P. Neilson, and D. Bachelet. 2003b. Climate change effects on vegetation distribution, carbon stocks, and fire regimes in California. Appendix IV *in* *Global climate change and California: potential implications for ecosystems, health, and the economy*. Electric Power Research Institute, Palo Alto, California, USA.
- Lenormand, T. 2002. Gene flow and the limits to natural selection. *Trends in Ecology & Evolution* 17:183–189.
- Leopold, A. 1933. *Game management*. Charles Scribner's Sons, New York, USA.
- Lessa, E.P., J.A. Cook, and J.L. Patton. 2003. Genetic footprints of demographic expansion in North America, but not Amazonia, following the Late Pleistocene. *Proceedings of the National Academy of Sciences, USA* 100:10331–10334.
- Lessa, E.P., G. D'Elia, and U.F.J. Pardiñas. 2010. Genetic footprints of late Quaternary climate change in the diversity of Patagonian-Fuegian rodents. *Molecular Ecology* 19:3013–3037.
- Levin, S.A. 1992. The problem of pattern and scale in ecology. *Ecology* 73:1943–1967.
- Lewis, J.C. 2006. Implementation plan for reintroducing fishers to Olympic National Park. Washington Department of Fish and Wildlife, Olympia, USA. Available at <http://wdfw.wa.gov/wlm/diversty/soc/fisher/>.

- Lewis, J.C., and P.J. Happe. 2008. Olympic fisher reintroduction project: 2008 progress report. Washington Department of Fish and Wildlife, Olympia, USA. Available at <http://wdfw.wa.gov/publications/pub.php?id=00226> (accessed June 2011).
- Lewis, J.C., P.J. Happe, K.J. Jenkins, and D.J. Manson. 2010. Olympic fisher reintroduction project: 2009 progress report. Washington Department of Fish and Wildlife, Olympia, USA. Available at <http://wdfw.wa.gov/publications/pub.php?id=00812> (accessed June 2011).
- Lewis, J.C., P.J. Happe, K.J. Jenkins, and D.J. Manson. 2011. Olympic fisher reintroduction project: 2010 progress report. Unpublished report, Washington Department of Fish and Wildlife, Olympia, USA. Available at <http://wdfw.wa.gov/publications/pub.php?id=01186> (accessed June 2011).
- Lewis, J.C., and G.E. Hayes. 2004. Feasibility assessment for reintroducing fishers to Washington. Washington Department of Fish and Wildlife, Olympia, USA. Available at <http://wdfw.wa.gov/publications/pub.php?id=00231> (accessed June 2011).
- Lewis, J.C., and W.J. Zielinski. 1996. Historical harvest and incidental capture of fishers in California. *Northwest Science* 70:291–297.
- Lewis, J.S., J.L. Rachlow, E.O. Garton, and L.A. Vierling. 2007. Effects of habitat on GPS collar performance: using data screening to reduce location error. *Journal of Applied Ecology* 44:663–671.
- Lewis, R.E., J.H. Lewis, and C. Maser. 1988. *The fleas of the Pacific Northwest*. Oregon State University Press, Corvallis, USA.

- Libois, R., and A. Waechter. 1991. La Fouine (*Martes foina*). In *Encyclopédie des carnivores de France*. Volume 10. Société Française pour l'Étude et Protection des Mammifères, Paris, France.
- Liebenberg, L. 1990. *The art of tracking: the origin of science*. David Philip Publishers, Cape Town, South Africa.
- Lima, S.L., and L.M. Dill. 1990. Behavioural decisions made under the risk of predation: a review and prospectus. *Canadian Journal of Zoology* 68:619–640.
- Lindenfors, P., L. Dálen, and A. Angerbjörn. 2003. The monophyletic origin of delayed implantation in carnivores and its implications. *Evolution* 57:1952–1956.
- Lindquist, E.E., K.W. Wu, and J.H. Redner. 1999. A new species of the tick genus *Ixodes* (Acari: Ixodidae) parasitic on mustelids (Mammalia: Carnivora) in Canada. *Canadian Entomologist* 131:151–170.
- Lindström, E.R. 1989. The role of medium-sized carnivores in the Nordic boreal forest. *Finnish Game Research* 46:53–63.
- Lindström, E.R., S.M. Brainerd, J.O. Helldin, and K. Overskaug. 1995. Pine marten-red fox interactions: a case of intraguild predation? *Annales Zoologici Fennici* 32:123–130.
- Linhart, S.B. 1985. Furbearer management and the steel foothold trap. Pages 52–63 in *Proceedings of the Great Plains Wildlife Damage Control Workshop*. D.B. Fagre, editor. San Antonio, Texas, USA.
- Lipsey, M.K., and M.F. Child. 2007. Combining the fields of reintroduction biology and restoration ecology. *Conservation Biology* 21:1387–1388.
- Lister, A. 2004. The impact of Quaternary ice ages on mammalian evolution. *Transactions of the Royal Society B: Biological Sciences* 359:221–241.

- Liu, Y.-M., J.-M. Lacorte, N. Viguerie, C. Poitou, V. Pelloux, B. Guy-Grand, C. Coussieu, D. Langin, A. Basdevant, and K. Clément. 2003. Adiponectin gene expression in subcutaneous adipose tissue of obese women in response to short-term very low calorie diet and refeeding. *Journal of Clinical Endocrinology and Metabolism* 88:5881–5886.
- Livia, L., V. Francesca, P. Antonella, P. Fausto, and R. Bernardino. 2006. A PCR-RFLP method on faecal samples to distinguish *Martes martes*, *Martes foina*, *Mustela putorius* and *Vulpes vulpes*. *Conservation Genetics* 8:757–759.
- Livingston, T.R., P.S. Gipson, W.B. Ballard, D.M. Sanchez, and P.R. Krausman. 2005. Scat removal: a source of bias in feces-related studies. *Wildlife Society Bulletin* 33:172–178.
- Lledo, L., C. Gimenez-Pardo, G. Dominguez-Penafiel, R. Sousa, M.I. Gegundez, N. Casado, and A. Criado. 2010. Molecular detection of hemoprotozoa and rickettsia species in arthropods collected from wild animals in the Burgos Province, Spain. *Vector-borne and Zoonotic Diseases* 10:735–738.
- Lodé, T. 1991a. Conspecific recognition and mating in stone marten *Martes foina*. *Acta Theriologica* 36:275–283.
- Lodé, T. 1991b. Exploitation des milieux et organisation de l'espace chez deux mustélides européens: la fouine et le putois. *Vie et Milieu* 41:29–38.
- Lofroth, E.C., C.M. Raley, J.M. Higley, R.L. Truex, J.S. Yaeger, J.C. Lewis, P.J. Happe, L.L. Finley, R.H. Naney, L.J. Hale, A.L. Krause, S.A. Livingston, A.M. Myers, and R.N. Brown. 2010. Conservation of fishers (*Martes pennanti*) in south-central British Columbia, western Washington, western Oregon, and California—volume I: conservation assessment. USDI Bureau of Land Management, Denver, Colorado.

- Lofroth, E.C., J.M. Higley, R.H. Naney, C.M. Raley, J.S. Yaeger, S.A. Livingston, and R.L. Truex. **In press**.<Au: can this be updated?> Conservation of fishers (*Martes pennanti*) in south-central British Columbia, western Washington, western Oregon, and California— volume II: key findings from fisher habitat studies in British Columbia, Montana, Idaho, Oregon, and California. USDI Bureau of Land Management, Denver, Colorado.
- Long, C. 2008. The wild mammals of Wisconsin. Pensoft Series Faunistica 68, Sofia-Moscow, Russia.
- Long, R.A., T.M. Donovan, P. MacKay, W.J. Zielinski, and J.S. Buzas. 2007a. Comparing scat detection dogs, cameras, and hair snares for surveying carnivores. *Journal of Wildlife Management* 71:2018–2025.
- Long, R.A., T.M. Donovan, P. MacKay, W.J. Zielinski, and J.S. Buzas. 2007b. Effectiveness of scat detection dogs for detecting forest carnivores. *Journal of Wildlife Management* 71:2007–2017.
- Long, R.A., T.M. Donovan, P. MacKay, W.J. Zielinski, and J.S. Buzas. 2011. Predicting carnivore occurrence with noninvasive surveys and occupancy modeling. *Landscape Ecology* 26:327–340.
- Long, R.A., P. MacKay, W.J. Zielinski, and J. C. Ray, editors. 2008. Noninvasive survey methods for carnivores. Island Press, Washington, D.C., USA.
- Long, R.A., and W.J. Zielinski. 2008. Designing effective noninvasive carnivore surveys. Pages 8–44 *in* Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Longpré, M.H., Y. Bergeron, D Paré, and M. Béland. 1994. Effect of companion species on the growth of jack pine. *Canadian Journal of Forest Research* 24:1846–1853.

- Loos-Frank, B. 2000. An update of Verster's (1969) "Taxonomic revision of the genus *Taenia* Linnaeus" (Cestoda) in table format. *Systematic Parasitology* 45:155–183.
- Loos-Frank, B., and E. Zeyhle. 1982. The intestinal helminths of the red fox and some other carnivores in southwest Germany. *Zeitschrift für Parasitenkunde* 67:99–113.
- Lubelczyk, C.B., T. Hanson, E.H. Lacombe, M.S. Holman, and J.E. Keirans. 2007. First U.S. record of the hard tick *Ixodes (Pholeoixodes) gregsoni* Lindquist, Wu, and Redner. *Journal of Parasitology* 93:718–719.
- Lucchesi, P.M.A., G.H. Arroyo, A.I. Etcheverría, A.E. Parma, and A.C. Seijo. 2004. Recommendations for the detection of *Leptospira* in urine by PCR. *Revista da Sociedade Brasileira de Medicina Tropical* 37:131–134.
- Luikart, G., N. Ryman, D.A. Tallmon, M.K. Schwartz, and F.W. Allendorf. 2010. Estimation of census and effective population sizes: the increasing usefulness of DNA-based approaches. *Conservation Genetics* 11:355–373.
- Lunn, D.J., A. Thomas, N. Best, and D. Spiegelhalter. 2000. WinBUGS—a Bayesian modeling framework: concepts, structure, and extensibility. *Statistics and Computing* 10:325–337.
- Luque, M. 1984. The fisher: Idaho's forgotten furbearer. *Idaho Wildlife* 4:12–15.
- Lutz, H.J. 1956. Ecological effects of forest fires in the interior of Alaska. USDA Technical Bulletin 1133, Washington, D.C.
- Lyman, R.L. 2011. Paleoecological and biogeographical implications of late Pleistocene noble marten (*Martes americana nobilis*) in eastern Washington state, USA. *Quaternary Research* 75:176–182.
- Lynch, A.B. 2006. An investigation into the ecology of the pine marten (*Martes martes*) in Killarney National Park. Dissertation, Trinity College, Dublin, Ireland.

- Lynch, A.B., and M.J.F. Brown. 2006. Molecular sexing of pine marten (*Martes martes*): how many replicates? *Molecular Ecology Notes* 6:631–633.
- Lynch, A.B., M.J.F. Brown, and J.M. Rochford. 2006. Fur snagging as a method of evaluating the presence and abundance of a small carnivore, the pine marten (*Martes martes*). *Journal of Zoology (London)* 270:330–339.
- Lynch, M. 1996. A quantitative-genetic perspective on conservation issues. Pages 471–501 in *Conservation genetics: case histories from nature*. J.C. Avise and J.L. Hamrick, editors. Chapman and Hall, New York, USA.
- Ma, Y., and L. Xu. 1994. Distribution and conservation of sables in China. Pages 255–261 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Ma, J., L. Xu, H. Zhang, and X. Bao. 1999. Activity patterns of sables (*Martes zibellini*) in Daxinganling Mountains, China. *Acta Theriologica Sinica* 19:95–100.
- Mabe, M., and M. Amin. 2001. Growth dynamics of scholarly and scientific journals. *Scientometrics* 51:147–162.
- MacDonald, S.O., and J.A. Cook. 1996. The land mammal fauna of southeast Alaska. *Canadian Field-Naturalist* 110:571–598.
- MacDonald, S.O., and J.A. Cook. 2007. *Mammals and amphibians of Southeast Alaska*. Special Publication No. 8, Museum of Southwestern Biology, University of New Mexico, Albuquerque, USA.
- MacKay, P., D.A. Smith, R.A. Long, and M. Parker. 2008a. Scat detection dogs. Pages 183–222 in *Noninvasive survey methods for carnivores*. R.A. Long, P. MacKay, W.J. Zielinski,

- and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- MacKay, P., W.J. Zielinski, R.A. Long, and J.C. Ray. 2008b. Noninvasive research and carnivore conservation. Pages 1–7 in *Noninvasive survey methods for carnivores*. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- MacKenzie, D.I., and L.R. Bailey. 2004. Assessing the fit of site-occupancy models. *Journal of Agricultural, Biological & Environmental Statistics* 9:300–318.
- MacKenzie, D.I., L.L. Bailey, and J.D. Nichols. 2004. Investigating species co-occurrence patterns when species are detected imperfectly. *Journal of Animal Ecology* 73:546–555.
- MacKenzie, D.I., and J.E. Hines. 2006. Program Presence, version 2.0. <http://www.mbr-pwrc.usgs.gov/software/doc/presence/presence.html> (accessed 20 May 2011).
- MacKenzie, D.I., and J.D. Nichols. 2004. Occupancy as a surrogate for abundance estimation. *Animal Biodiversity and Conservation* 27:461–467.
- MacKenzie, D.I., J.D. Nichols, J.E. Hines, M.G. Knutson, and A.B. Franklin. 2003. Estimating site occupancy, colonization, and extinction when a species is detected imperfectly. *Ecology* 84:2200–2207.
- MacKenzie, D.I., J.D. Nichols, G.B. Lachman, S. Droege, J.A. Royle, and C.A. Langtimm. 2002. Estimating site occupancy rates when detection probabilities are less than one. *Ecology* 83:2248–2255.
- MacKenzie, D.I., J.D. Nichols, J.A. Royle, K.H. Pollock, L.L. Bailey, and J.E. Hines. 2006. *Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence*. Academic Press, Burlington, Massachusetts, USA.

- MacKenzie, D.I., J.D. Nichols, M.E. Seamans, and R.J. Gutiérrez. 2009. Modeling species occurrence dynamics with multiple states and imperfect detection. *Ecology* 90:823–835.
- MacKenzie, D.I., and J.A. Royle. 2005. Designing occupancy studies: general advice and allocating of survey effort. *Journal of Applied Ecology* 42:1105–1114.
- MacNulty, D.R., G.E. Plumb, and D.W. Smith. 2008. Validation of a new video and telemetry system for remotely monitoring wildlife. *Journal of Wildlife Management* 72:1834–1844.
- Maffei, M., J. Halaas, E. Ravussin, R.E. Pratley, G.H. Lee, Y. Zhang, H. Fei, S. Kim, R. Lallone, S. Ranganathan, P.A. Kern, and J.M. Friedman. 1995. Leptin levels in human and rodent: measurement of plasma leptin and ob RNA in obese and weight-reduced subjects. *Nature Medicine* 1:1155–1161.
- Magoun, A.J., C.D. Long, M.K. Schwartz, K.L. Pilgrim, R.E. Lowell, and P. Valkenburg. 2011a. Integrating motion-detection cameras and hair snags for wolverine identification. *Journal of Wildlife Management* 75:731–739.
- Magoun, A.J., P. Valkenburg, D.N. Peterson, C.D. Long, and R.E. Lowell. 2011b. Wolverine images—using motion-detection cameras for photographing, identifying, and monitoring wolverines. Blurb <http://www.blurb.com/bookstore/detail/1914572> (accessed 23 May 2011).
- Main, W.A., D.M. Paananen, and R.E. Burgan. 1990. Fire Family Plus. USDA Forest Service General Technical Report, GTR-NC-138.
- Malyarchuk, B.A., A.V. Petrovskaya, and M.V. Derenko. 2010. Intraspecific structure of sable *Martes zibellina* L. Inferred from nucleotide variation of the mitochondrial DNA cytochrome *b* gene. *Russian Journal of Genetics* 46:64–68.

- Manel, S., M.K. Schwartz, G. Luikart, and P. Taberlet. 2003. Landscape genetics: combining landscape ecology and population genetics. *Trends in Ecology & Evolution* 18:189–197.
- Manel, S., O.E. Gaggiotti, and R.S. Waples. 2005. Assignment methods: matching biological questions with appropriate techniques. *Trends in Ecology and Evolution* 20:136–142.
- Manfredo, M.J., T.L. Teel, and A.D. Bright. 2003. Why are public values toward wildlife changing? *Human Dimensions of Wildlife* 8:287–306.
- Mangas, J.G., M. Carboles, L.H. Alcázar, D. Bellón, and E. Virgós. 2007. Aproximación al estudio de la ecología espacial de especies simpátricas: la garduña (*Martes foina*) y la gineta (*Genetta genetta*). *Galemys* 19:61–71.
- Manion, P.D. 1991. *Tree disease concepts*. Second edition. Prentice Hall Career and Technology, New Jersey, USA.
- Manley, P.N., B. Van Horne, J.K. Roth, W.J. Zielinski, M.M. McKenzie, T.J. Weller, F.W. Weckerly, and C. Hargis. 2006. *Multiple species inventory and monitoring technical guide*. USDA Forest Service, General Technical Report WO-GTR-73.
- Manly, B.F.J., L.L. McDonald, D.L. Thomas, T.L. McDonald, and W.P. Erickson. 2002. *Resource selection by animals: statistical design and analysis for field studies*. Second edition. Kluwer Academic, Dordrecht, The Netherlands.
- Mann, M.E. 2002. Little Ice Age. Pages 504–509 in *Encyclopedia of global environmental change*. M.C. MacCracken and J. S. Perry, editors. John Wiley & Sons, Chichester, UK.
- Marchesi, P. 1989. *Ecologie et comportement de la martre (Martes martes L.) dans le Jura Suisse*. Dissertation, Université Neuchâtel, Switzerland. (in French)

- Marchesi, P., N. Lachat, R. Lienhard, Ph. Debiève, and C. Mermod. 1989. Comparaison des régimes alimentaires de la fouine (*Martes foina* Erxl.) et de la martre (*Martes martes* L.) dans une région du Jura Suisse. *Revue Suisse de Zoologie* 96:281–296.
- Marchesi, P., and C. Mermod. 1989. Régime alimentaire de la martre (*Martes martes* L.) dans le Jura Suisse (Mammalia: Mustelidae). *Revue Suisse de Zoologie* 96:127–146.
- Marcogliese, D.J. 2005. Parasites of the superorganism: are they indicators of ecosystem health? *International Journal of Parasitology* 35:705–716.
- Marcot, B.G. 1997. Species-environment relations (SER) database. Interior Columbia Basin Ecosystem Management Project, USDA Forest Service and USDI Bureau of Land Management. Database available at:
<http://www.icbemp.gov/spatial/metadata/databases/dbase.html>
- Marcot, B.G., and K.B. Aubry. 2003. The functional diversity of mammals in coniferous forests of western North America. Pages 631–664 *in* Mammal community dynamics: management and conservation in the coniferous forests of western North America. C.J. Zabel and R.G. Anthony, editors. Cambridge University Press, UK.
- Marcot, B.G., S.S. Ganzei, T. Zhang, and B.A. Voronov. 1997. A sustainable plan for conserving forest biodiversity in Far East Russia and northeast China. *Forestry Chronicle* 73:565–571.
- Marcot, B.G., W.E. McConnaha, P.H. Whitney, T.A. O'Neil, P.J. Paquet, L.E. Mobrand, G.R. Blair, L.C. Lestelle, K.M. Malone, and K.I. Jenkins. 2002. A multi-species framework approach for the Columbia River Basin: integrating fish, wildlife, and ecological functions. Available on CD-ROM and at <http://www.nwcouncil.org/edt/framework/>. Northwest Power Planning Council, Portland, Oregon, USA.

- Marincovich, L., Jr., and A.Y. Gladenkov. 1999. Evidence for an early opening of the Bering Strait. *Nature* 397:149–151.
- Markham, A.C., and A.J. Wilkinson. 2008. EcoLocate: a heterogeneous wireless network system for wildlife tracking. Pages 293–298 *in* Novel algorithms and techniques in telecommunications, automation and industrial electronics. T. Sobh, K. Elleithy, A. Mahmood, and M.A. Kari editors. Springer Science+Business Media, Dordrecht, Netherlands.
- Marmi, J., J.F. Lopez-Giraldez, and X. Domingo-Roura. 2004. Phylogeny, evolutionary history and taxonomy of the Mustelidae based on sequences of the cytochrome *b* gene and a complex repetitive flanking region. *Zoological Scripta* 33:481–499.
- Martinek, K., L. Kolarova, and J. Cerveny. 2001. *Echinococcus multilocularis* in carnivores from the Klatovy district of the Czech Republic. *Journal of Helminthology* 75:61–66.
- Marucco, F., L. Boitani, D.H. Pletscher, and M.K. Schwartz. 2011. Bridging the gaps between non-invasive genetic sampling and population parameter estimation. *European Journal of Wildlife Research* 57:1–13.
- Mascarenhas, A., P. Coelho, E. Subtil, and T.B. Ramos. 2010. The role of common local indicators in regional sustainability assessment. *Ecological Indicators* 10:646–656.
- Masseti, M. 1995. Quaternary biogeography of the Mustelidae family on the Mediterranean islands. *Hystrix* 7:17–34.
- Masuda, R. 2009. *Martes melampus* (Wagner, 1840). Page 250–251 *in* The wild mammals of Japan. S.D. Ohdachi, Y. Ishibashi, M.A. Iwasa, and T. Saitoh, editors. Shoukadoh, Kyoto, Japan.

- Mathews, F., D. Moro, R. Strachan, M. Gelling, and N. Buller. 2006. Health surveillance in wildlife reintroductions. *Biological Conservation* 131:338–347.
- Matos, H.M., M.J. Santos, F. Palomares, and M. Santos-Reis. 2009. Does riparian habitat condition influence mammalian carnivore abundance in Mediterranean ecosystems? *Biodiversity and Conservation* 18:373–386.
- Matos, H., and M. Santos-Reis. 2006. Distribution and status of the pine marten *Martes martes* in Portugal. Pages 47–61 in *Martes* in carnivore communities. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Matsubara, M., S. Maruoka, and S. Katayose. 2002. Inverse relationship between plasma adiponectin and leptin concentrations in normal-weight and obese women. *European Journal of Endocrinology* 147:173–180.
- Matthew, W.D. 1924. Third contribution to the Snake Creek fauna. *Bulletin of the American Museum of Natural History* 50:59–210.
- Mauritzen, M., A.E. Derocher, O. Wiig, S.E. Belikov, A.N. Boltunov, E. Hansen, and G.W. Garner. 2002. Using satellite telemetry to define spatial population structure in polar bears in the Norwegian and western Russian Arctic. *Journal of Applied Ecology* 39:79–90.
- Mayer, K.A., M.D. Dailey, and M.A. Miller. 2003. Helminth parasites of the southern sea otter *Enhydra lutris nereis* in central California: abundance, distribution and pathology. *Diseases of Aquatic Organisms* 53:77–88.
- Mayor, S.J., J.A. Schaefer, D.C. Schneider, and S.P. Mahoney. 2007. Spectrum of selection: new approaches to detecting the scale-dependent response to habitat. *Ecology* 88:1634–1640.

- Mazzoni, A.K. 2002. Habitat use by fishers (*Martes pennanti*) in the southern Sierra Nevada, California. Thesis, California State University, Fresno, USA.
- McAllister, M.M. 2005. A decade of discoveries in veterinary protozoology changes our concept of "subclinical" toxoplasmosis. *Veterinary Parasitology* 132:241–247.
- McCann, N.P., P.A. Zollner, and J.H. Gilbert. 2010. Survival of adult martens in northern Wisconsin. *Journal of Wildlife Management* 74:1502–1507.
- McCarthy, A.J., M.A. Shaw, and S.J. Goodman. 2007. Pathogen evolution and disease emergence in carnivores. *Proceedings of the Royal Society of London, Biological Sciences* 274:3165–3174.
- McCarthy, K.P., T.K. Fuller, M. Ming, T.M. McCarthy, L. Waits, and K. Jumabaev. 2008. Assessing estimators of snow leopard abundance. *Journal of Wildlife Management* 72:1826–1833.
- McCaw, D., and J. Hoskins. 2006. Canine viral enteritis. Pages 63–73 in *Infectious diseases of the dog and cat*. Third edition. C. E. Green, editor. W.B. Saunders, Philadelphia, Pennsylvania, USA.
- McClelland, B.R., and P.T. McClelland. 1999. Pileated woodpecker nest and roost trees in Montana: links with old-growth and forest “health”. *Wildlife Society Bulletin* 27:846–857.
- McComb, B., B. Zuckerberg, D. Vesely, and C. Jordan. 2010. *Monitoring animal populations and their habitats: a practitioner’s guide*. CRC Press, Boca Raton, Florida, USA.
- McCullagh, P., and J.A. Nelder. 1989. *Generalized linear models*. Second Edition. Chapman and Hall/CRC, Boca Raton, Florida, USA.

- McDaniel, G.W., K.S. McKelvey, J.R. Squires, and L.F. Ruggiero. 2000. Efficacy of lures and hair snares to detect lynx. *Wildlife Society Bulletin* 28:119–123.
- McDonald, R.A., and S. Larivière. 2001. Diseases and pathogens of *Mustela* spp., with special reference to the biological control of introduced stoat *Mustela erminea* populations in New Zealand. *Journal of the Royal Society of New Zealand* 31:721–744.
- McFadden, L.M. 2007. Home-range dynamics and habitat selection of American martens (*Martes americana*) in Michigan's northern Lower Peninsula. Thesis, Central Michigan University, Mount Pleasant, USA.
- McGarigal, K., S.A. Cushman, M.C. Neel, and E. Ene. 2002. FRAGSTATS: spatial pattern analysis program for categorical maps. University of Massachusetts, Amherst, USA.
- McGavin, D. 1987. Inactivation of canine parvovirus by disinfectants and heat. *Journal of Small Animal Practice* 28:523–535.
- McGowan, C., L.A. Howes, and W.S. Davidson. 1999. Genetic analysis of an endangered pine marten (*Martes americana*) population from Newfoundland using randomly amplified polymorphic DNA markers. *Canadian Journal of Zoology* 77:661–666.
- McGuill, M.W., and A.N. Rowan. 1989. Biological effects of blood loss: implications for sampling volumes and techniques. *ILAR News* 31:5–18.
- McIntyre, N.E. 1997. Scale-dependent habitat selection by the darkling beetle *Eleodes hispilabris* (Coleoptera: Tenebrionidae). *American Midland Naturalist* 138:230–235.
- McKague, C.I. 2007. Winter resource selection by the American marten (*Martes americana*): the effect of model resolution. Thesis, University of Guelph, Ontario, Canada.
- McKelvey, K.S., K.B. Aubry, and M.K. Schwartz. 2008. Using anecdotal occurrence data for rare or elusive species: the illusion of reality and a call for evidentiary standards.

- BioScience 58:549–555.
- McKelvey, K.S., and J.D. Johnston. 1992. Historical perspectives on forests of the Sierra Nevada and Transverse Ranges of southern California: forest conditions at the turn of the century. Pages 225–246 *in* The California spotted owl: a technical assessment of its current status. J. Verner, K.S. McKelvey, B.R. Noon, R.J. Gutiérrez, G.I. Gould, Jr., and T.W. Beck, technical coordinators. USDA Forest Service, General Technical Report PSW-GTR-133.
- McKelvey, K.S, J. von Kienast, K.B. Aubry, G.M. Koehler, B.T. Maletzke, J.R. Squires, E.L. Lindquist, S. Loch, and M.K. Schwartz. 2006. DNA analysis of hair and scat collected along snow tracks to document the presence of Canada lynx. *Wildlife Society Bulletin* 34:451–455.
- McKenzie, D., Z. Gedalof, D.L. Peterson, and P. Mote. 2004. Climate change, wildfire, and conservation. *Conservation Biology* 18:890–902.
- McNeely, J.A. 2002. The role of taxonomy in conserving biodiversity. *Journal for Nature Conservation* 10:145–153.
- McRae, B.H., and P. Beier. 2007. Circuit theory predicts gene flow in plant and animal populations. *Proceedings of the National Academy of Sciences, USA* 104:19885–19890.
- McRae, B.H., B.G. Dickson, T.H. Keitt, and V.B. Shah. 2008. Using circuit theory to model connectivity in ecology and conservation. *Ecology* 10:2712–2724.
- McRae, B.H., and V.B. Shah. 2009. Circuitscape user guide. <http://www.circuitscape.org/Circuitscape/Welcome.html> (accessed 23 April 2010).
- Mead, J.F., R.B. Alfin-Slater, D.R. Howton, and G. Popják. 1986. *Lipids: chemistry, biochemistry, and nutrition*. Plenum, New York, USA.

- Mead, R.A. 1994. Reproduction in *Martes*. Pages 404–422 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Mech, L.D. 1974. Current techniques in the study of elusive wilderness carnivores. Pages 315–322 in XI International Congress of Game Biologists, National Swedish Environmental Protection Board. I. Kjerner and P. Bjurholm, editors. Swedish National Environment Protection Board, Stockholm, Sweden.
- Mech, L.D., and S.M. Barber. 2002. A critique of wildlife radio-tracking and its use in national parks: report to the US National Park Service. U.S. National Park Service, Fort Collins, Colorado, USA.
- Mech, L.D., and L.L. Rogers. 1977. Status, distribution and movements of marten in northeastern Minnesota. USDA Forest Service, Research Paper NC-143.
- Meidinger, D., and J. Pojar. 1991. Ecosystems of British Columbia. British Columbia Ministry of Forests, Victoria, Canada. <http://www.for.gov.bc.ca/hfd/pubs/Docs/Srs/Srs06.htm> (accessed 15 Apr 2011).
- Mergey, M. 2007. Réponses des populations de martres d'Europe (*Martes martes*) à la fragmentation de l'habitat : mécanismes comportementaux et conséquences. Dissertation, University of Reims, Campagne-Ardenne, France.
- Mergey, M., R. Helder, and J-J. Roeder. 2011. Effect of forest fragmentation on space-use patterns in the European pine marten (*Martes martes*). *Journal of Mammalogy* 92:328–335.
- Merriam, C.H. 1882. The vertebrates of the Adirondack region, northeastern New York. *Transactions of the Linnaean Society of New York* 1:5–168.

- Merriam, C.H. 1890. Description of a new marten (*Mustela caurina*) from the north-west coast region of the United States. *North American Fauna* 4:27–29.
- Merrill, G.P. 1920. Contributions to a history of American state geological and natural history surveys. U.S. National Museum Bulletin 109. Government Printing Office, Washington, D.C., USA.
- Meshcherskii, I.G., V.V. Rozhnov, and S.V. Naidenko. 2003. On certain properties of water and energy metabolism in representatives of *Martes* and *Mustela* genera (Mammalia: Mustelidae). *Biology Bulletin* 30:406–410.
- Meyer, C.B., and W. Thuiller. 2006. Accuracy of resource selection functions across spatial scales. *Diversity and Distributions* 12:288–297.
- Michelat, D., J.P. Quéré, and P. Giraudoux. 2001. Caractéristiques des gîtes utilisés par la fouine (*Martes foina*, Erxleben, 1777) dans le Haut-Doubs. *Revue Suisse de Zoologie* 108:263–274.
- Michigan Department of Natural Resources. 1970. 25th biennial report of the Department of Natural Resources of the State of Michigan, 1969–1970. Michigan Department of Natural Resources, Lansing, USA.
- Miguel, J., J.C. Casanova, F.Tenora, C. Filiu, and J. Torres. 1995. A scanning electron-microscope study of some Rictulariidae (Nematoda) parasites of Iberian mammals. *Helminthologia* 32:3–14.
- Millan, J., and E. Ferroglio. 2001. Helminth parasites in stone martens (*Martes foina*) from Italy. *Zeitschrift für Jagdwissenschaft* 47:229–231.

- Miller, B., D. Biggins, C. Wemmer, R. Powell, L. Calvo, and T. Wharton. 1990a. Development of survival skills in captive-raised Siberian polecats (*Mustela eversmanni*). II. Predator avoidance. *Ethology* 8:95–104.
- Miller, B., D. Biggins, C. Wemmer, R. Powell, L. Hanebury, D. Horn, and A. Vargas. 1990b. Development of survival skills in captive-raised Siberian polecats (*Mustela eversmanni*). I. Locating prey. *Ethology* 8:89–94.
- Miller, B., K. Ralls, R.P. Reading, J.M. Scott, and J. Estes. 1999. Biological and technical considerations of carnivore translocation: a review. *Animal Conservation* 2:59–68.
- Miller, C., and D. Urban. 1999. Forest pattern, fire and climatic change in the Sierra Nevada. *Ecosystems* 2:76–87.
- Miller, D.R. 1961. Marten transplanting in northern Manitoba. Biological Report, Manitoba Game Branch, Winnipeg, Canada.
- Miller, J.D., H.D. Safford, M. Crimmins, and A.E. Thode. 2009. Quantitative evidence for increasing forest fire severity in the Sierra Nevada and southern Cascade Mountains, California and Nevada, USA. *Ecosystems* 12:16–32.
- Miller, J.D., C.N. Skinner, H.D. Safford, E.E. Knapp, and C.M. Ramirez. **In press**. Trends and causes of severity, size, and number of fires in northwestern California, USA. *Ecological Applications*.
- Miller, P.S., and R.C. Lacy. 2005. VORTEX: a stochastic simulation of the extinction process. Version 9.50 User's Manual. Conservation Breeding Specialist Group (SSC/IUCN), Apple Valley, Minnesota, USA.
- Miller, R.G., R.W. Ritcey, and R.Y. Edwards. 1955. Live-trapping marten in British Columbia. *Murrelet* 36:1–8.

- Millspough, J.J., and J.M. Marzluff. 2001. Radio tracking and animal populations. Academic Press, San Diego, California, USA.
- Minta, S.C., P.M. Kareiva, and A.P. Curlee. 1999. Carnivore research and conservation: learning from history and theory. Pages 323–404 *in* Carnivores in ecosystems: the Yellowstone experience. T.W. Clark, A.P. Curlee, S.C. Minta, and P.M. Kareiva, editors. Yale University Press, New Haven, Connecticut, USA.
- Mitchell, M.S., and R.A. Powell. 2003. Response of black bears to forest management in the southern Appalachian Mountains. *Journal of Wildlife Management* 67:692–705.
- Mitchell, M.S., J.W. Zimmerman, and R.A. Powell. 2002. Test of a habitat suitability index for black bears in the southern Appalachians. *Wildlife Society Bulletin* 30:794–808.
- Mitchell, T.D., and P.D. Jones. 2005. An improved method of constructing a database of monthly climate observations and associated high-resolution grids. *International Journal of Climatology* 25:693–712.
- Mitchell-Jones, A.J., G. Amori, W. Bogdanowicz, B. Krystufek, P.J.H. Reijnders, F. Spitzenberger, M. Stubbe, J.B.M. Thissen, V. Vohralik, and J. Zima. 1999. The atlas of European mammals. Academic Press, London, UK.
- Mitcheltree, D.H., T.L. Serfass, M.T. Whary, W.M. Tzilkowski, R.P. Brooks, and R.L. Peper. 1997. Captive care and clinical evaluation of fishers during the first year of a reintroduction project. Pages 317–328 *in* *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Miyoshi, K., and S. Higashi. 2005. Home range and habitat use by the sable *Martes zibellina brachyura* in a Japanese cool-temperate mixed forest. *Ecological Research* 20:95–101.

- Mladenoff, D.J. 2004. LANDIS and forest landscape models. *Ecological Modelling* 180:7–19.
- Möhl, K., K. Grosse, A. Hamedy, T. Wüste, P. Kabelitz, and E. Lücker. 2009. Biology of *Alaria* spp. and human exposition risk to *Alaria mesocercariae*—a review. *Parasitological Research* 105:1–15.
- Moilanen, A., H. Kujala, and J. Leathwick. 2009. The Zonation framework and software for conservation prioritization. Pages 196–210 *in* *Spatial conservation prioritization: quantitative methods and computational tools*. A. Moilanen, K.A. Wilson, H.P. Possingham, editors. Oxford University Press, Oxford, UK.
- Moloney, F.X. 1931. *The fur trade in New England, 1620–1676*. Harvard University Press, Cambridge, Massachusetts, USA.
- Monakhov, G.I. 1976. Geographic variability and taxonomic structure of sable in the USSR. Pages 54–86 *in* *Proceedings for the Research Institute for Game Farming and Animal Breeding*, Kirov, Russia.
- Monakhov, G.I., and N.N. Bakeev. 1981. *The sable*. Lesnaja Promishlennost Publishing House, Moscow, USSR. (in Russian)
- Monakhov, G.I., V.S. Kriuchkov, V.G. Monakhov, and V.V. Shurigin. 1982. Results of East-Siberian sables introduction in Yenisei Siberia and Vasugan River basin. Pages 136–148 *in* *Game theriology*. D. I. Bibikov and N.N. Grakov, editors. Nauka Publishing House, Moscow, USSR. (in Russian)
- Monakhov, G.I., and V.G. Monakhov. 1978. Patterns of acclimatization in sable populations restored through the introduction. Pages 185–187 *in* *Acclimatization of game animals in USSR*. Y.N. Chichikin, editor. Urojhai Publishing House, Minsk, USSR. (in Russian)

- Monakhov, V.G. 1978. Economic effectiveness of reacclimatization works in sable at Yenisei Siberia. Pages 114–116 in *Acclimatization of game animals in USSR*. Y.N. Chichikin, editor. Urojhai Publishing House, Minsk, USSR. (in Russian)
- Monakhov, V.G. 1982. Economic efficiency of sable reintroduction works. Pages 94–95 in *Enrichment of the fauna and breeding of game animals*. V.G. Safonov, editor. VNIIOZ, Kirov, USSR. (in Russian)
- Monakhov, V.G. 1984. Morphological changes of sables in Middle Siberia and Ob River basin under influence of Baikal immigrants. Dissertation, Institute of Plant and Animal Ecology, Russian Academy of Sciences, Yekaterinburg, USSR. (in Russian)
- Monakhov, V.G. 1995. Sable in the Urals, Ob Region, and Yenisei Siberia: results of acclimatization. Bank of Cultural Information Publishing House, Yekaterinburg, USSR. (in Russian)
- Monakhov, V.G. 1999. The prevalence of filaroidiasis (*Filaroides martis*) in Russian sables (*Martes zibellina*) of different sex and age. *Russian Journal of Ecology* 30:420–427. (in Russian)
- Monakhov, V.G. 2001. Phenetic analysis of aboriginal and introduced populations of sable (*Martes zibellina*) in Russia. *Russian Journal of Genetics* 37:1074–1081.
- Monakhov, V.G. 2006. Dynamics of size and phenetic structure of sable in specific area. Ural Division of Russian Academy of Science, Bank of Cultural Information Publishing House, Ekaterinburg, USSR. (in Russian)
- Monakhov, V.G. 2009. Is sexual size dimorphism variable? Data on species of the genus *Martes* in the Urals. *Biology Bulletin* 36:45–52.

- Monakhov, V.G. 2010. Phenogeography of a cranial trait of the sable *Martes zibellina* L. in the species area. *Doklady Biological Sciences* 431:94–99.
- Monfort, S.L., C.C. Schwartz, and S.K. Wasser. 1993. Monitoring reproduction in moose using urinary and fecal steroid metabolites. *Journal of Wildlife Management* 57:400–407.
- Montgomery, C.A., G.M. Brown, Jr, and D.M. Adams. 1994. The marginal cost of species preservation: the northern spotted owl. *Journal of Environmental Economics and Management* 26:111–128.
- Moore, T.D., L.E. Spence, C.E. Dugnolle, and W.G. Hepworth. 1974. Identification of the dorsal guard hairs of some mammals of Wyoming. Wyoming Game and Fish Department, Bulletin No. 14, Cheyenne, USA.
- Morin, P.A., F.I. Archer, A.D. Foote, J. Vilstrup, E.E. Allen, P. Wade, J.W. Durban, K. Parsons, R.L. Pitman, L. Li, P. Bouffard, S.C. Abel Nielsen, M. Rasmussen, E. Willerslev, M. Thomas, P. Gilbert, and T. Harkins. 2010. Complete mitochondrial genome phylogeographic analysis of killer whales (*Orcinus orca*) indicates multiple species. *Genome Research* 20:908–916.
- Morin, P.A., and D.S. Woodruff. 1992. Paternity exclusion using multiple hypervariable microsatellite loci amplified from nuclear DNA of hair cells. Pages 63–8 *in* Paternity in primates: genetic tests and theories. R.D. Martin, A.F. Dixson, and E.J. Wickings, editors. Karger, Basel, Switzerland.
- Moritz, C., J.L. Patton, C.J. Conroy, J.L. Parra, G.C. White, and S.R. Beissinger. 2008. Impact of a century of climate change of small-mammal communities in Yosemite National Park, USA. *Science* 322:261–264.
- Morlo, M., G.F. Gunnell, and D. Nagel. 2010. Ecomorphological analysis of carnivore guilds in

- the Eocene through Miocene of Laurasia. Pages 269–310 *in* Carnivoran evolution: new views on phylogeny, form, and function. A. Goswami and A. Friscia, editors. Cambridge University Press, UK.
- Mörner, T. 1992. Sarcoptic mange in Swedish wildlife. *Revue Scientifique et Technique* 11:1115–1121.
- Morris, D.W. 1987. Spatial scale and the cost of density-dependent habitat selection. *Evolutionary Ecology* 1:379–388.
- Morris, D.W. 1989. Habitat-dependent estimates of competitive interaction. *Oikos* 55:111–120.
- Morris, D.W. 1992. Scales and cost of habitat selection in heterogeneous environments. *Evolutionary Ecology* 6:412–432.
- Morris, D.W. 2002. Measuring the Allee effect: positive density dependence in small mammals. *Ecology* 83:14–20.
- Morrison, M.L., and L.S. Hall. 2002. Standard terminology: toward a common language to advance ecological understanding and application. Pages 43–52 *in* Predicting species occurrences: issues of accuracy and scale. J.M. Scott, P.J. Heglund, M.L. Morrison, J.B. Haufler, M.G. Raphael, W.A. Wall, and F.B. Samson, editors. Island Press, Seattle, Washington, USA.
- Morrison, T.A., Yoshizaki, J., Nichols, J.D., and D.T. Bolger. 2011. Estimating survival in photographic capture-recapture studies: overcoming misidentification error. *Methods in Ecology and Evolution*: published online March 25, 2011. DOI: 10.1111/j.2041-210X.2011.00106.x.

- Mortelliti, A., and L. Boitani. 2008. Interaction of food resources and landscape structure in determining the probability of patch use by carnivores in fragmented landscapes. *Landscape Ecology* 23:285–298.
- Morton, D.B., D. Abbot, R. Barclay, B.S. Close, R. Ewbank, D. Gask, M. Heath, S. Mattic, T. Poole, and J. Seamer. 1993. Removal of blood from laboratory mammals and birds. *Laboratory Animals* 27:1–22.
- Moruzzi, T.L., K.J. Royar, C. Grove, R.T. Brooks, C. Bernier, F.L. Thompson, Jr., R.M. DeGraaf, and T.K. Fuller. 2003. Assessing an American marten, *Martes americana*, reintroduction in Vermont. *Canadian Field-Naturalist* 117:190–195.
- Mos, L., P.S. Ross, D. McIntosh, and S. Raverty. 2003. Canine distemper virus in river otters in British Columbia as an emergent risk for coastal pinnipeds. *Veterinary Record* 152:237–239.
- Moser, B.W., and E.O. Garton. 2007. Effects of telemetry location error on space-use estimates using a fixed-kernel density estimator. *Journal of Wildlife Management* 71:2421–2426.
- Mowat, G. 2006. Winter habitat associations of American martens *Martes americana* in interior wet-belt forests. *Wildlife Biology* 12:51–61.
- Mowat, G., and D. Paetkau. 2002. Estimating marten *Martes americana* population size using hair capture and genetic tagging. *Wildlife Biology* 8:201–209.
- Mowat, G., C. Shurgot, and K. Poole. 2000. Using track plates and remote cameras to detect marten and short-tailed weasels in coastal cedar hemlock forests. *Northwestern Naturalist* 81:113–121.

- Müller, T., J. Cox, W. Peter, R. Schafer, N. Johnson, L.M. McElhinney, J.L. Geue, K. Tjornehoj, and A.R. Fooks. 2004. Spill-over of European bat lyssavirus type 1 into a stone marten (*Martes foina*) in Germany. *Journal of Veterinary Medicine, Series B* 51:49–54.
- Mullins, J., M.J. Statham, T. Roche, P.D. Turner, and C. O'Reilly. 2010. Remotely plucked hair genotyping: a reliable and non-invasive method for censusing pine marten (*Martes martes*, L. 1758) populations. *European Journal of Wildlife Research* 56:443–453.
- Mullis, C. 1985. Habitat utilization by fisher (*Martes pennanti*) near Hayfork Bally, California. Thesis, Humboldt State University, Arcata, California, USA.
- Munson, L. 2003. Scope and magnitude of disease in species conservation. Pages 19–21 in *Animal movements and disease risk: a workbook*. D. Armstrong, R. Jakob-Hoff, and U. S. Seal, editors. Conservation Breeding Specialist Group (SSC/IUCN).
- Munson, L. 2004. Necropsy of wild animals.
<http://www.vetmed.ucdavis.edu/whc/pdfs/munsonnecropsy.pdf>
- Munson, L., and W.B. Karesh. 2002. *Conservation medicine: disease monitoring for the conservation of terrestrial animals*. Oxford University Press, New York, USA.
- Murakami, T. 2009. *Martes zibellina* (Linnaeus, 1758). Pages 252–253 in *The wild mammals of Japan*. S.D. Ohdachi, Y. Ishibashi, M.A. Iwasa and T. Saitoh, editors. Shoukadoh, Kyoto, Japan.
- Murakami, T., M. Asano, and N. Ohtaishi. 2004. Mitochondrial DNA variation in the Japanese marten *Martes melampus* and Japanese sable, *Martes zibellina*. *Japanese Journal of Veterinary Research* 51:135–142.
- Murakami, T., and N. Ohtaishi. 2000. Current distribution of the endemic sable and introduced Japanese marten in Hokkaido. *Mammal Study* 25:149–152.

- Murie, A. 1961. Some food habits of the marten. *Journal of Mammalogy* 42:516–521.
- Murphy, D.D., and B.R. Noon. 1992. Integrating scientific methods with habitat planning: reserve design for northern spotted owls. *Ecological Applications* 2:3–17.
- Murphy, M.A., L.P. Waits, and K.C. Kendall. 2000. Quantitative evaluation of fecal drying methods for brown bear DNA analysis. *Wildlife Society Bulletin* 28:951–957.
- Murray, D.L., C.A. Kapke, J.F. Evermann, and T.K. Fuller. 1999. Infectious disease and the conservation of free-ranging large carnivores. *Animal Conservation* 2:241–254.
- Mustonen, A.-M., J. Asikainen, J. Aho, and P. Nieminen. 2007a. Selective seasonal fatty acid accumulation and mobilization in the wild raccoon dog (*Nyctereutes procyonoides*). *Lipids* 42:1155–1167.
- Mustonen, A.-M., J. Asikainen, K. Kauhala, T. Paakkonen, and P. Nieminen. 2007b. Seasonal rhythms of body temperature in the free-ranging raccoon dog (*Nyctereutes procyonoides*) with special emphasis on winter sleep. *Chronobiology International* 24:1095–1107.
- Mustonen, A.-M., R. Käkälä, and P. Nieminen. 2007c. Different fatty acid composition in central and peripheral adipose tissues of the American mink (*Mustela vison*). *Comparative Biochemistry and Physiology A* 147:903–910.
- Mustonen, A.-M., and P. Nieminen. 2006. Fatty acid composition in the central and peripheral adipose tissues of the sable (*Martes zibellina*). *Journal of Thermal Biology* 31:617–625.
- Mustonen, A.-M., M. Puukka, K. Rouvinen-Watt, J. Aho, J. Asikainen, and P. Nieminen. 2009. Response to fasting in an unnaturally obese carnivore, the captive European polecat *Mustela putorius*. *Experimental Biology and Medicine* 234:1287–1295.

- Mustonen, A.-M., M. Puukka, S. Saarela, T. Paakkonen, J. Aho, and P. Nieminen. 2006a. Adaptations to fasting in a terrestrial mustelid, the sable (*Martes zibellina*). *Comparative Biochemistry and Physiology A* 144:444–450.
- Mustonen, A.-M., T. Pyykönen, J. Aho, and P. Nieminen. 2006b. Hyperthermia and increased physical activity in the fasting American mink *Mustela vison*. *Journal of Experimental Zoology A* 305:489–498.
- Mustonen, A.-M., T. Pyykönen, T. Paakkonen, A. Ryökkynen, J. Asikainen, J. Aho, J. Mononen, and P. Nieminen. 2005a. Adaptations to fasting in the American mink (*Mustela vison*): carbohydrate and lipid metabolism. *Comparative Biochemistry and Physiology A* 140:195–202.
- Mustonen, A.-M., S. Saarela, and P. Nieminen. 2008. Food deprivation in the common vole (*Microtus arvalis*) and the tundra vole (*Microtus oeconomus*). *Journal of Comparative Physiology B* 178:199–208.
- Mustonen, A.-M., S. Saarela, T. Pyykönen, and P. Nieminen. 2005b. Endocrinologic adaptations to wintertime fasting in the male American mink (*Mustela vison*). *Experimental Biology and Medicine* 230:612–620.
- Nagel, D., C. Stefen, and M. Morlo. 2009. The carnivoran community from the Miocene of Sandelzhausen (Germany). *Paläontologische Zeitschrift* 83:151–174.
- Nagorsen, D.W. 1994. Body weight variation among insular and mainland American martens. Pages 85–97 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Nagorsen, D.W., K.F. Morrison, and J.E. Forsberg. 1989. Winter diet of Vancouver Island

- marten (*Martes americana*). *Canadian Journal of Zoology* 67:1394–1400.
- Nakaya, H. 1994. Faunal change of late Miocene Africa and Eurasia: mammalian fauna from the Namurungule Formation, Samburu Hills, northern Kenya. *African Study Monographs* 20:1–112.
- Nakicenovic, N., J. Alcamo, G. Davis, B. de Vries, J. Fenhann, S. Gaffin, K. Gregory, A. Grübler, T.Y. Jung, T. Kram, E.L.L. Rovere, L. Michaelis, S. Mori, T. Morita, W. Pepper, H. Pitcher, L. Price, K. Riahi, A. Roehrl, H.-H. Rogner, A. Sankovski, M. Schlesinger, P. Shukla, S. Smith, R. Swart, S. van Rooijen, N. Victor, and Z. Dadi. 2000. Special report on emissions scenarios. A Special Report of Working Group III of the Intergovernmental Panel on Climate Change. Cambridge University Press, UK.
- Nams, V.O., and M. Bourgeois. 2004. Fractal analysis measures habitat use at different spatial scales: an example with American marten. *Canadian Journal of Zoology* 82:1738–1747.
- Nasimovich, A.A., editor. 1973. Sable, martens, yellow-throated marten. Nauka Publishing House, Moscow, USSR.
- National Landcover Database. 2001. Multi-resolution Land Characteristics Consortium. Available at <http://www.mrlc.gov/>. Accessed November 2006.
- National Parks and Wildlife Service. 2007. *Martes martes* (1357) conservation status assessment report. Unpublished report to the National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- Nelson, K.A. 1979. The occurrence of wolverine (*Gulo luscus*) and other mammals by baited hair traps and snow transects in Six Rivers National Forest. Technical Report, Six Rivers National Forest, Eureka, California, USA.

- Nelson, R.A., D.L. Steiger, and T.D.I. Beck. 1983. Neuroendocrine and metabolic interactions in the hibernating black bear. *Acta Zoologica Fennica* 174:137–141.
- Nes, N., E.J. Einarsson, O. Lohi, and G. Jorgensen. 1988. Beautiful fur animals and their colour genetics. Scientifur, Glostrup, Denmark.
- New, M., M. Hulme, and P.D. Jones. 1999. Representing twentieth century space-time climate variability. Part 1: development of a 1961–90 mean monthly terrestrial climatology. *Journal of Climate* 12:829–856.
- New, M., D. Lister, M. Hulme, and I. Makin. 2002. A high-resolution data set of surface climate over global land areas. *Climate Research* 21:1–25.
- Newman, M.E.J. 2010. *Networks: an introduction*. Oxford University Press, Oxford, UK.
- Newsom, W.M. 1937. Mammals on Anticosti Island. *Journal of Mammalogy* 18:435–442.
- Nichols, J.D., L.L. Bailey, A.F. O’Connell, Jr., N.W. Talancy, E.H.C. Grant, A.T. Gilbert, E.M. Annand, T.P. Husband, and J.E. Hines. 2008. Multi-scale occupancy estimation and modeling using multiple detection methods. *Journal of Applied Ecology* 45:1321–1329.
- Nichols, J.D., J.E. Hines, D.I. MacKenzie, M.E. Seamans, and R.J. Gutiérrez. 2007. Occupancy estimation with multiple states and state uncertainty. *Ecology* 88:1395–1400.
- Nichols, J.D., and B.K. Williams. 2006. Monitoring for conservation. *Trends in Ecology & Evolution* 21:668–673.
- Nieberding, C.M., M.-C. Durette-Desset, A. Vanderpooten, J.C. Casanova, A. Ribas, V. Deffontaine, C. Feliu, S. Morand, R. Libois, and J.R. Michaux. 2008. Geography and host biogeography matter for understanding the phylogeography of a parasite. *Molecular Phylogenetics and Evolution* 47:538–554.
- Nieberding, C., S. Morand, R. Libois, and J.R. Michaux. 2004. A parasite reveals cryptic

- phylogeographic history of its hosts. *Proceedings of the Royal Society B* 271:2559–2568.
- Nieberding, C.M., and I. Olivieri. 2006. Parasites: proxies for host genealogy and ecology? *Trends in Ecology & Evolution* 22:156–165.
- Nielsen, L. 1988. Definitions, considerations, and guidelines for translocation of wild animals. Pages 12–51 *in* *Translocation of wild animals*. L. Nielson and R.D. Brown, editors. Wisconsin Humane Society and Caesar Kleberg Wildlife Research Institute, Milwaukee, USA.
- Nieminen, P., J. Asikainen, and H. Hyvärinen. 2001. Effects of seasonality and fasting on the plasma leptin and thyroxin levels of the raccoon dog (*Nyctereutes procyonoides*) and the blue fox (*Alopex lagopus*). *Journal of Experimental Zoology* 289:109–118.
- Nieminen, P., R. Käckelä, T. Pyykönen, and A.-M. Mustonen. 2006a. Selective fatty acid mobilization in the American mink (*Mustela vison*) during food deprivation. *Comparative Biochemistry and Physiology B* 145:81–93.
- Nieminen, P., and A.-M. Mustonen. 2007. Uniform fatty acid mobilization from anatomically distinct fat depots in the sable (*Martes zibellina*). *Lipids* 42:659–669.
- Nieminen, P., and A.-M. Mustonen. 2008. A preliminary study on the seasonal body temperature rhythms of the captive mountain hare (*Lepus timidus*). *Cryobiology* 56:163–167.
- Nieminen, P., A.-M. Mustonen, J. Asikainen, and H. Hyvärinen. 2002. Seasonal weight regulation of the raccoon dog (*Nyctereutes procyonoides*): interactions between melatonin, leptin, ghrelin, and growth hormone. *Journal of Biological Rhythms* 17:155–163.
- Nieminen, P., A.-M. Mustonen, V. Kärjä, J. Asikainen, and K. Rouvinen-Watt. 2009. Fatty acid composition and development of hepatic lipidosis during food deprivation—mustelids as

- a potential animal model for liver steatosis. *Experimental Biology and Medicine* 234:278–286.
- Nieminen, P., K. Rouvinen-Watt, D. Collins, J. Grant, and A.-M. Mustonen. 2006b. Fatty acid profiles and relative mobilization during fasting in adipose tissue depots of the American marten (*Martes americana*). *Lipids* 41:231–240.
- Nieminen, P., K. Rouvinen-Watt, S. Saarela, and A.-M. Mustonen. 2007. Fasting in the American marten (*Martes americana*): a physiological model of the adaptations of a lean-bodied animal. *Journal of Comparative Physiology B* 177:787–795.
- Nikolova, S., Y. Tzvetkov, H. Najdenski, and A. Vesselinova. 2001. Isolation of pathogenic yersiniae from wild animals in Bulgaria. *Journal of Veterinary Medicine, Series B* 48:203–209.
- Noblet, J.-F. 2002. La martre. *Éveil Nature*, Saint-Yrieix-sur-Charente, France.
- Nomura, T. 2005. Methods for minimizing the loss of genetic diversity in conserved populations with overlapping generations. *Conservation Genetics* 6:655–663.
- Novak, M., M.E. Obbard, J.G. Jones, R. Newman, A. Booth, A.J. Satterthwaite, and G. Linscombe. 1987. *Furbearer harvests in North America, 1600–1984*. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Nowak, R.M. 1999. *Walker's mammals of the world*. Sixth edition. John Hopkins University Press, Baltimore, Maryland, USA.
- Nowak, R.M. 2005. *Walker's carnivores of the world*. Johns Hopkins University Press, Baltimore, Maryland, USA.
- Nukerbaeva, K.K. 1981. Coccidia of sables (*Martes zibellina*). *Izvestiia Akademaii Nauk Kazachskoi SSR, seriya Biologicheskia Nauk* 1:30–33.

- Nyholm, E.S. 1961. Havaintoja näätäeläinten käyttäytymisestä (Observations on mustelid behavior). *Luonnon Tutkija* 65:50–56. (in Finnish)
- Oatway, M.L., and D.W. Morris. 2007. Do animals select habitat at small or large scales? An experiment with meadow voles. *Canadian Journal of Zoology* 85:479–487.
- Obbard, M.E., J.G. Jones, R. Newman, A. Booth, A.J. Stterthwaite, and G. Linscombe. 1987. Furbearer harvests in North America. Pages 1007–1034 *in* Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- O’Connell, A.F., Jr., N. Talancy, L.L. Bailey, J. Sauer, R. Cook, and A.T. Gilbert. 2006. Estimating site occupancy and detection probability parameters for mammals in a coastal ecosystem. *Journal of Wildlife Management* 70:1625–1633.
- Ognev, S.I. 1925. A systematical review of the Russian sables. *Journal of Mammalogy* 6:276–280.
- Oksanen, T., L. Oksanen, and S.D. Fretwell. 1985. Surplus killing in the hunting strategy of small predators. *American Naturalist* 126:328–346.
- Olsen, O.W. 1952. *Crenosoma coloradoensis*, n. sp., (Nematoda: Metastrongylidae) from the lungs of martens, *Martes caurina origenes* (Rhoads). *Journal of Parasitology* 38:207–209.
- O’Mahony, D., C. O’Reilly, and P. Turner. 2006. National pine marten survey of Ireland 2005. COFORD Connects 7.
- O’Meara, D.C., D.D. Payne, and J.F. Witter. 1960. *Sarcoptes* infestation of a fisher. *Journal of Wildlife Management* 24:339.

- Ontario Ministry of Natural Resources. 1988. Timber management guidelines for the provision of moose habitat. Queen's Printer for Ontario, Toronto, Canada.
- Orrlock, J.L., J.F. Pagels, W.J. McShea, and E.K. Harper. 2000. Predicting presence and abundance of a small mammal species: the effect of scale and resolution. *Ecological Applications* 10:1356–1366.
- Oshima, K. 1990. The history of straits around the Japanese islands in the Late-Quaternary. *Quaternary Research* 29:193–208.
- O'Sullivan, P.J. 1983. The distribution of the pine marten (*Martes martes*) in the Republic of Ireland. *Mammal Review* 13:39–44.
- Otranto, D., R.P. Lia, C. Cantacessi, E. Brianti, D. Traversa, and S. Giannetto. 2007. *Filaria martis* Gmelin 1790 (Spirurida, Filariidae) affecting beech marten (*Martes foina*): morphological description and molecular characterisation of the cytochrome oxidase c subunit I. *Parasitological Research* 101:877–883.
- Ouborg J., C. Pertoldi, V. Loeschcke, R. Bijlsma, and P.W. Hedrick. 2010a. Conservation genetics in transition to conservation genomics, *Trends in Genetics* 26:177–187.
- Ouborg, N.J., F. Angeloni, and P. Vergeer. 2010b. An essay on the necessity and feasibility of conservation genomics. *Conservation Genetics* 11:643–653.
- Pack, J.C., and J.I. Cromer. 1981. Reintroduction of fisher in West Virginia. Pages 1431–1442 in *Worldwide furbearer conference proceedings*. J.A. Chapman and D. Pursley, editors. Worldwide Furbearer Conference, Frostburg, Maryland, USA.
- Page, R.J., and S.D. Langton. 1996. The occurrence of ixodid ticks on wild mink *Mustela vison* in England and Wales. *Medical and Veterinary Entomology* 10:359–364.
- Paleobiology Database. 2009. <http://paleodb.org> (accessed April 2009).

- Palmer, R.S., editor. 1949. Rufus B. Philbrook, trapper. *New England Quarterly* 22:452–474.
- Palomares, F., and T.M. Caro. 1999. Interspecific killing among carnivores. *American Naturalist* 153:492–508.
- Palstra, F.P., and D.E. Ruzzante. 2010. A temporal perspective on population structure and gene flow in Atlantic salmon (*Salmo salar*) in Newfoundland, Canada. *Canadian Journal of Fisheries and Aquatic Sciences* 67:225–242.
- Paragi, T.F. 1990. Reproductive biology of female fishers in southcentral Maine. Thesis, University of Maine, Orono, USA.
- Paragi, T.F., W.N. Johnson, D.D. Katnik, and A.J. Magoun. 1996. Marten selection of postfire seres in the Alaska taiga. *Canadian Journal of Zoology* 74:2226–2237.
- Paragi, T.F., W.B. Krohn, and S.M. Arthur. 1994. Using estimates of fisher recruitment and survival to evaluate population trend. *Northeast Wildlife* 51:1–11.
- Parks, C.G., and E.L. Bull. 1997. American marten use of rust and dwarf mistletoe brooms in northeastern Oregon. *Western Journal of Applied Forestry* 12:131–133.
- Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology and Systematics* 37:637–669.
- Parmesan, C., and G. Yohe. 2003. A globally coherent fingerprint of climate change impacts across natural systems. *Nature* 412:37–42.
- Parrish, C., P. Have, W. Foreyt, J. Evermann, M. Senda, and L. Carmichael. 1988. The global spread and replacement of canine parvovirus strains. *Journal of General Virology* 69:1111–1116.

- Parrish, C., and Y. Kawaoka. 2005. The origins of new pandemic viruses: the acquisition of new host ranges by canine parvovirus and influenza A viruses. *Annual Review of Microbiology* 59:553–586.
- Parrish, S-V. 1972. The fur and skin trade of Colonial Virginia. Thesis, Old Dominion University, Norfolk, Virginia, USA.
- Parsons, G.R., M.K. Brown, and G.B. Will. 1978. Determining the sex of fisher from the lower canine teeth. *New York Fish and Game Journal* 25:42–44.
- Pasitschniak-Arts, M., and S. Larivière. 1995. *Gulo gulo*. *Mammalian Species* 499:1–10.
- Patterson, B.D., G. Ceballos, W. Sechrest, M.F. Tognelli, T. Brooks, L. Luna, P. Ortega, I. Salazar, and B.E. Young. 2003. Digital distribution maps of the mammals of the Western Hemisphere, version 1.0. NatureServe, Arlington, Virginia, USA.
- Patton, H. 1925. Raising fur-bearing animals. Wheldon & Wesley, London, UK.
- Paul, T.W. 2009. Game transplants in Alaska. Second edition. Technical Bulletin No. 4, Alaska Department of Fish and Game. Juneau, USA.
- Pauli, J.N. 2010. Ecological studies of the American marten (*Martes americana*): quantifying cryptic processes in an elusive species. Dissertation, University of Wyoming, Laramie.
- Pauli, J.N., M. Ben-David, S.W. Buskirk, J.E. DePue, and W.P. Smith. 2009a. An isotopic technique to mark mid-size vertebrates non-invasively. *Journal of Zoology* 278:141–148.
- Pauli, J.N., M.B. Hamilton, E.B. Crain, S.W. Buskirk. 2008. A single-sampling hair trap for mesocarnivores. *Journal of Wildlife Management* 72:1650–1652.
- Pauli, J.N., J.P. Whiteman, M.D. Riley, and A.D. Middleton. 2009b. Defining noninvasive approaches for sampling of vertebrates. *Conservation Biology* 24:349–352.

- Pavlinov, I.Y., and O.L. Rossolimo. 1979. Geographic variability and intraspecies systematics of sable (*Martes zibellina* L.) in the USSR. Pages 241–256 in *Proceedings of the Zoological Museum, Moscow State University, Russia*.
- Pavlov, M.P. 1973a. Resettlement of sables in the USSR. Pages 24–32 in *Acclimatization and reacclimatization of game animals*. B.A. Galaka, editor. USSR Agricultural Ministry, Kiev, USSR. (in Russian)
- Pavlov, M.P. 1973b. The pine marten. Pages 106–107 in *Acclimatization of game mammals in the Soviet Union 1*. I.D. Kiris, editor. Volgo-Vyatskoe Publishing House, Kirov, USSR. (in Russian)
- Pavlov, M.P. 1973c. The stone marten. Pages 108–109 in *Acclimatization of game mammals in the Soviet Union 1*. I.D. Kiris, editor. Volgo-Vyatskoe Publishing House, Kirov, USSR. (in Russian)
- Payer, D.C. 1999. Influences of timber harvesting and trapping on habitat selection and demographic characteristics of marten. Dissertation, University of Maine, Orono, USA.
- Payer, D.C., and D.J. Harrison. 1999. Influences of timber harvesting and trapping on habitat selection and demographic characteristics of marten. Final Report, Cooperative Forestry Research Unit, University of Maine, Orono, USA.
- Payer, D., and D. Harrison. 2000. Structural differences between forests regenerating following spruce budworm defoliation and clear-cut harvesting: implications for marten. *Canadian Journal of Forest Research* 30:1965–1972.
- Payer, D.C., and D.J. Harrison. 2003. Influence of forest structure on habitat use by American marten in an industrial forest. *Forest Ecology and Management* 179:145–156.

- Payer, D., and D. Harrison. 2004. Relationships between forest structure and habitat use by American marten in Maine, USA. Pages 173–186 in *Martens and fishers (Martes) in human-altered environments: an international perspective*. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Payer, D., D. Harrison, and D. Phillips. 2004. Territoriality and home-range fidelity of American martens in relation to timber harvesting and trapping. Pages 99–114 in *Martens and fishers (Martes) in human-altered environments: an international perspective*. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Pearson, R.G., and T.P. Dawson. 2004. Bioclimate envelope models: what they detect and what they hide; response to Hampe (2004). *Global Ecology and Biogeography* 13:471–473.
- Pedersen, A.B., K.E. Jones, C.L. Nunn, and S. Altizer. 2007. Infectious diseases and extinction risk in wild mammals. *Conservation Biology* 21:1269–1279.
- Peigne, S., M.J. Salesa, M. Anton, J. Morales. 2006. New data on carnivores from the Middle Miocene (Upper Aragonian, MN 6) of Arroyo del Val area (Villafeliche, Zaragoza Province, Spain). *Estudio Geologicos* 62:359–374.
- Pelletier, A.-M. 2005. Préférences d’habitat estival, structure d’âge et reproduction d’une population de martres d’Amérique (*Martes americana*) dans un secteur forestier aménagé de manière intensive au Nord-Ouest du Nouveau-Brunswick. Thesis, University of Moncton, New Brunswick, Canada.
- Pellikka, J., H. Rita, and H. Linden. 2005. Monitoring wildlife richness—Finnish applications based on wildlife triangle censuses. *Annales Zoologici Fennici* 42:123–134.

- Pereboom, V., M. Mergey, N. Villerette, R. Helder, J-F. Gerard, and T. Lodé. 2008. Movement patterns, habitat selection, and corridor use of a typical woodland-dweller species, the European pine marten (*Martes martes*), in fragmented landscape. *Canadian Journal of Zoology* 86:983–991.
- Perez, J.M., and R.L. Palma. 2001. A new species of *Felicola* (Phthiraptera: Trichodectidae) from the endangered Iberian lynx: another reason to ensure its survival. *Biodiversity and Conservation* 10:929–937.
- Perkins, S.E., S. Altizer, O. Bjornstad, J.J. Burdon, K. Clay, L. Gomez-Aparicio, J.M. Jesche, P.T.J. Johnson, K.D. Lafferty, C.M. Malstrom, P. Martin, A. Power, D.L. Strayer, P.H. Thrall, and M. Uriarte. 2008. Invasion biology and parasitic infections. Pages 179–204 in *Infectious disease ecology: effects of ecosystems on disease and of diseases on ecosystems*. R.S. Ostfeld, F. Keesing, and V.T. Eviner, editors. Princeton University Press, New Jersey, USA.
- Pertoldi, C., S.F. Barker, A.B. Madsen, H. Jørgensen, E. Randi, J. Muñoz, H.J. Baagoe, and V. Loeschcke. 2008a. Spatio-temporal population genetics of the Danish pine marten (*Martes martes*). *Biological Journal of the Linnean Society* 93:457–464.
- Pertoldi, C., R. Bijlsma, and V. Loeschcke. 2007. Conservation genetics in a globally changing environment: present problems, paradoxes and future challenges. *Biodiversity and Conservation* 16:4147–4163.
- Pertoldi, C., M.M. Hansen, V. Loeschcke, A.B. Madsen, L. Jacobsen, and H. Baagoe. 2001. Genetic consequences of population decline in European otter *Lutra lutra*: an assessment of microsatellite DNA variation in Danish otters from 1883 to 1993. *Proceedings of the Royal Society of London, Series B* 268:1775–1781.

- Pertoldi, C., J. Munoz, A.B. Madsen, J.S.F. Barker, D.H.H. Andersen, J. Baagøe, M. Birch, and V. Loeschcke. 2008b. Genetic variability in the mitochondrial DNA of the Danish pine marten. *Journal of Zoology* 276:168–175.
- Pertoldi, C., and C. Topping. 2004. Impact assessment predicted by means of genetic agent-based modelling. *Critical Reviews in Toxicology* 34:487–498.
- Petersen<Au: Peterson as in Table 6.4?>, L.R., M.A. Martin, and C.M. Fils. 1977. Status of fishers in Wisconsin, 1975. Report 92, Wisconsin Department Natural Resources, Madison, USA.
- Peterson, M., and M.J. Manfredi. 1993. Social science and the evolving conservation philosophy. Pages 292–304 in *Conservation and resource management*. S.K. Majumder, E.W. Miler, D.E. Baker, E.K. Brown, J.R. Pratt, and R.T. Schmalz, editors. Pennsylvania Academy of Sciences, Pittsburgh, USA.
- Petit, E., and N. Valiere. 2006. Estimating population size with noninvasive capture-mark-recapture data. *Conservation Biology* 20:1062–1073.
- Petrovskaya, A.V. 2007. Genetic structure of the sable *Martes zibellina* L. populations from Magadan Oblast as inferred from mitochondrial DNA variation. *Russian Journal of Genetics* 43:424–429.
- Petter, G. 1965. Deux mustelids nouveaux du pontien d'Espagne orientale. *Bulletin du Muséum National d'Histoire Naturelle, 2ème série* 36:270–278.
- Philippa, J., C. Fournier-Chambrillon, P. Fournier, W. Schaftenaar, M. van de Bildt, R. van Herweijnen, T. Kuiken, M. Liabeuf, S. Ditcharry, L. Joubert, M. Begnier, and A. Osterhaus. 2008. Serologic survey for selected viral pathogens in free-ranging

- endangered European mink (*Mustela lutreola*) and other mustelids from south-western France. *Journal of Wildlife Diseases* 44:791–801.
- Philippa, J.D., F.A. Leighton, P.Y. Daoust, O. Nielsen, M. Pagliarulo, H. Schwantje, T. Shury, R. Van Herwijnen, B.E. Martina, T. Kuiken, M.W. Van de Bildt, and A.D. Osterhaus. 2004. Antibodies to selected pathogens in free-ranging terrestrial carnivores and marine mammals in Canada. *Veterinary Record* 155:135–140.
- Phillips, D.M., D.J. Harrison, and D.C. Payer. 1998. Seasonal changes in home range area and fidelity of martens. *Journal of Mammalogy* 79:180–190.
- Phillips, M.K., and D.W. Smith. 1998. *The wolves of Yellowstone*. Voyageur Press, Minneapolis, Minnesota, USA.
- Phillips, S.J., and M. Dudik. 2008. Modeling of species distributions with Maxent: new extensions and a comprehensive evaluation. *Ecography* 31:161–175.
- Pielou, E.C. 1991. *After the Ice Age: the return of life to glaciated North America*. University of Chicago Press, Illinois, USA.
- Piggott, M.P. 2004. Effect of sample age and season of collection on the reliability of microsatellite genotyping of faecal DNA. *Wildlife Research* 31:485–493.
- Piggott, M.P., and A.C. Taylor. 2003. Remote collection of animal DNA and its applications in conservation management and understanding the population biology of rare and cryptic species. *Wildlife Research* 30:1–13.
- Pilot, M., B. Gralak, J. Goszczyński, and M. Posłuszny. 2007. A method of genetic identification of pine marten (*Martes martes*) and stone marten (*Martes foina*) and its application to faecal samples. *Journal of Zoology* 271:140–147.

- Poizat, G., and D. Pont. 1996. Multi-scale approach to species-habitat relationships: juvenile fish in a large river section. *Freshwater Biology* 36:611–622.
- Pollock, K.H., J.D. Nichols, T.R. Simon, G.L. Farnsworth, L.L. Bailey, and J.R. Sauer. 2002. Large scale wildlife monitoring studies: statistical methods for design and analysis. *Envirometrics* 13:105–119.
- Poole, B.C., K. Chadee, and T.A. Dick. 1983. Helminth parasites of pine marten, *Martes americana* (Turton), from Manitoba, Canada. *Journal of Wildlife Diseases* 19:10–13.
- Poole, K.G., A.D. Porter, A. de Vries, C. Maundrell, S.D. Grindal, and C.C. St. Clair. 2004. Suitability of a young deciduous-dominated forest for American marten and the effects of forest removal. *Canadian Journal of Zoology* 82:423–435.
- Porter, A.S., C.C. St. Clair, and A. de Vries. 2005. Fine-scale selection by marten during winter in a young deciduous forest. *Canadian Journal of Forest Research* 35:901–909.
- Posillico, M., P. Serafini, and S. Lovari. 1995. Activity patterns of the stone marten *Martes foina* Erxleben, 1777, in relation to some environmental factors. *Hystrix* 7:79–97.
- Posluszny, M., M. Pilot, J. Goszczynski, and B. Gralak. 2007. Diet of sympatric pine marten (*Martes martes*) and stone marten (*Martes foina*) identified by genotyping of DNA from faeces. *Annales Zoologici Fennici* 44:269–284.
- Postma, E., and A.J. van Noordwijk. 2005. Gene flow maintains a large genetic difference in clutch size at a small spatial scale. *Nature* 433:65–68.
- Potter, D. 2002. Modelling fisher (*Martes pennanti*) habitat associations in Nova Scotia. Thesis, Acadia University, Wolfville, Nova Scotia, Canada.

- Potvin, F. 1998. La martre d'amerique (*Martes americana*) et la coupe a blanc en foret boreal: une approche telemetrique et geomatique. Dissertation, Universite Laval, Quebec, Canada.
- Potvin, F., L. Bélanger, and K. Lowell. 2000. Marten habitat selection in a clearcut boreal landscape. *Conservation Biology* 14:844–857.
- Potvin, F., and L. Breton. 1997. Short-term effects of clearcutting on martens and their prey in the boreal forest of western Quebec. Pages 452–474 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Poulton, S., J.D.S. Birks, J.E. Messenger, and D.J. Jefferies. 2006. A quality-scoring system for using sightings data to assess pine marten distribution at low densities. Pages 177–202 in *Martes in carnivore communities*. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Powell, R.A. 1977. Hunting behaviour, ecological energetics and predator-prey community stability of the fisher (*Martes pennanti*). Dissertation, University of Chicago, Illinois, USA.
- Powell, R.A. 1979a. Ecological energetics and foraging strategies of the fisher (*Martes pennanti*). *Journal of Animal Ecology* 48:195–212.
- Powell, R.A. 1979b. Mustelid spacing patterns: variations on a theme by *Mustela*. *Zeitschrift für Tierpsychologie* 50:153–165.
- Powell, R.A. 1981. *Martes pennanti*. *Mammalian Species* 156:1–6.
- Powell, R.A. 1982. The fisher: life history, ecology, and behavior. University of Minnesota Press, Minneapolis, USA.

- Powell, R.A. 1993. The fisher: life history, ecology and behavior. Second edition. University of Minnesota Press, Minneapolis, USA.
- Powell, R.A. 1994a. Evolution and biogeography: introduction. Pages 11–12 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Powell, R.A. 1994b. Structure and spacing of *Martes* populations. Pages 101–121 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Powell, R.A. 2000. Animal home ranges and territories and home range estimators. Pages 65–110 in Research techniques in animal ecology: controversies and consequences. L. Boitani and T.K. Fuller, editors. Columbia University Press, New York, USA.
- Powell, R.A. 2004. Home ranges, cognitive maps, habitat models and fitness landscapes for *Martes*. Pages 135–146 in Martens and fishers (*Martes*) in human-altered landscapes: an international perspective. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Powell, R.A., S.W. Buskirk, and W.J. Zielinski. 2003. Fisher and marten: *Martes pennanti* and *Martes americana*. Pages 635–649 in Wild mammals of North America: biology, management and conservation. Second edition. G.A. Feldhamer, B.C. Thompson, and J.A. Chapman, editors. Johns Hopkins University Press, Baltimore, Maryland, USA.
- Powell, R.A., and G. Proulx. 2003. Trapping and marking terrestrial mammals for research: integrating ethics, standards, techniques, and common sense. Institute of Laboratory Animal Research Journal 44:259–276.

- Powell, R.A., and W.J. Zielinski. 1994. Fisher. Pages 38–73 in *The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the western United States*. L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski, technical editors. USDA Forest Service, General Technical Report RM-254.
- Powell, S.M., E.C. York, and T.K. Fuller. 1997. Seasonal food habits of fishers in central New England. Pages 279–305 in *Martes: taxonomy, ecology, techniques and management*. G.Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Pozio, E. 2000. Factors affecting the flow among domestic, synanthropic and sylvatic cycles of *Trichinella*. *Veterinary Parasitology* 93:241–262.
- Pozio, E. 2005. The broad spectrum of *Trichinella* hosts: from cold to warm-blooded animals. *Veterinary Parasitology* 132:3–11.
- Pozio, E., G. La Rosa, D.S. Zarlenga, and E.P. Hoberg. 2009a. Molecular taxonomy and phylogeny of nematodes of the genus *Trichinella*. *Infection Genetics and Evolution* 9:606–616.
- Pozio, E., L. Rinaldi, G. Marucci, V. Musella, F. Galati, G. Cringoli, P. Boireau, and G. La Rosa. 2009b. Hosts and habitats of *Trichinella spiralis* and *Trichinella britovi* in Europe. *International Journal for Parasitology* 39:71–79.
- Prasad, A.M., L.R. Iverson, and A. Liaw. 2006. Newer classification and regression tree techniques: bagging and random forests for ecological prediction. *Ecosystems* 9:181–199.
- Preble, E.A. 1902. A biological investigation of the Hudson Bay Region. *North American Fauna* 22:1–140.

- Prell, H. 1928. Die fortpflanzungsbiologie des Amerikanischen fichtenmardes *Martes americana* Turt. Die Pelztierzucht 4, Germany.
- Presley, S.G. 2000. *Eira barbara*. Mammalian Species 636:1–6.
- Pridham, T.J., and J. Belcher. 1958. Toxoplasmosis in mink. Canadian Journal of Comparative Medicine and Veterinary Science 22:99–106.
- Prigioni, C., A. Balestrieri, L. Remonti, and L. Cavada. 2008. Differential use of food and habitat by sympatric carnivores in the eastern Italian Alps. Italian Journal of Zoology 75:173–184.
- Proctor, M.F., B.N. McLellan, C. Strobeck, and R.M.R. Barclay. 2005. Genetic analysis reveals demographic fragmentation of grizzly bears yielding vulnerably small populations. Proceedings of the Royal Society B 272:2409–2416.
- Promislow, D.E.L., and P.H. Harvey. 1990. Living fast and dying young: a comparative analysis of life-history variation among mammals. Journal of Zoology 220:417–437.
- Proulx, G. 1997. Improved trapping standards for marten and fisher. Pages 362–371 in *Martes: taxonomy, ecology, techniques and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Proulx, G. 1999a. Review of current mammal trap technology in North America. Pages 1–46 in *Mammal trapping*. G. Proulx, editor. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Proulx, G. 1999b. The Bionic: an effective marten trap. Pages 79–87 in *Mammal trapping*. G. Proulx, editor, Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Proulx, G. 2000. The impact of human activities on North American mustelids. Pages 53–75 in *Mustelids in a modern world: management and conservation aspects of small*

- carnivore:human interactions. H.I. Griffiths, editor. Backhuys Publishers, Leiden, The Netherlands.
- Proulx, G. 2005a. Integrating the habitat needs of fine- and coarse-filter species in landscape planning. *In* Proceedings of the Species at Risk 2004: Pathways to Recovery Conference. T.D. Hooper, editor. Species at Risk 2004: Pathways to Recovery Conference Organizing Committee, Victoria, British Columbia, Canada.
http://www.llbc.leg.bc.ca/Public/PubDocs/bcdocs/400484/proulx_edited_final_march_17.pdf (accessed 21 March 2011).
- Proulx, G. 2005b. Predicting the distribution of mountain caribou, wolverine, fisher, and grizzly bear in Prince George Forest District: III. Field verification of fisher predictive distribution maps, and observations on other species at risk in Tree Farm Licence 30. Final Report to Canadian Forest Products Ltd., Prince George, British Columbia, Canada. FIA Agreement No. 2003-FIA-11.
http://www.env.gov.bc.ca/wildlife/wsi/reports/3754_WSI_3754_RPT.PDF (accessed 2 April 2010).
- Proulx, G. 2006a. Using forest inventory data to predict winter habitat use by fisher *Martes pennanti* in British Columbia, Canada. *Acta Theriologica* 51:275–282.
- Proulx, G. 2006b. Winter habitat use by American marten in western Alberta boreal forests. *Canadian Field-Naturalist* 120:100–105.
- Proulx, G. 2009. Conserving American marten *Martes americana* winter habitat in sub-boreal spruce forests affected by mountain pine beetle *Dendroctonus ponderosae* infestations and logging in British Columbia, Canada. *Small Carnivore Conservation* 41:51–57.
- Proulx, G. 2010. Fisher. *The Canadian Encyclopedia*, Historica Foundation of Canada.

- <http://www.thecanadianencyclopedia.com/PrinterFriendly.cfm?Params=A1ARTA000282>
6 (accessed 21 March 2011).
- Proulx, G., K. Aubry, J. Birks, S. Buskirk, C. Fortin, H. Frost, W. Krohn, L. Mayo, V. Monakhov, D. Payer, M. Saeki, M. Santos-Reis, R. Weir, and W. Zielinski. 2004. World distribution and status of the genus *Martes* in 2000. Pages 21–76 in *Martens and fishers (Martes) in human-altered environments: an international perspective*. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Proulx, G., and M.W. Barrett. 1989. Animal welfare concerns and wildlife trapping: ethics, standards and commitments. *Transactions of the Western Section of the Wildlife Society* 25:1–6.
- Proulx, G., and M.W. Barrett. 1994. Ethical considerations in the selection of traps to harvest American martens and fishers. Pages 192–196 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Proulx, G., M.W. Barrett, and S.R. Cook. 1989a. The C120 Magnum: an effective quick-kill trap for marten. *Wildlife Society Bulletin* 17:294–298.
- Proulx, G., H.N. Bryant, and P.M. Woodard, editors. 1997. *Martes* taxonomy, ecology, techniques, and management. Provincial Museum of Alberta, Edmonton, Canada.
- Proulx, G., M.R.L. Cattet, and R.A. Powell. *In press*. <Au: can this now be updated?> Humane and efficient capture and handling methods for carnivores. In *Carnivore ecology and conservation: a handbook of techniques*, L. Boitani and R.A. Powell, editors. Oxford University Press, London, UK.
- Proulx, G., S.R. Cook, and M.W. Barrett. 1989b. Assessment and preliminary development of

- the rotating-jaw Conibear 120 trap to effectively kill marten (*Martes americana*).
Canadian Journal of Zoology 67:1074–1079.
- Proulx, G., and B. Genereux. 2009. Persistence of a reintroduced fisher, *Martes pennanti*, population in Cooking Lake-Blackfoot Provincial Recreation Area, Central Alberta. *Canadian Field-Naturalist* 123:178–181.
- Proulx, G., A.J. Kolenosky, M.J. Badry, R.K. Drescher, K. Seidel, and P.J. Cole. 1994. Post-release movements of translocated fishers. Pages 197–203 in *Martens, sables, and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Proulx, G., and E.C. O’Doherty. 2006. Snow-tracking to determine *Martes* winter distribution and habitat use. Pages 211–224 in *Martes in carnivore communities*. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Proulx, G., and R. Verbisky. 2001. Occurrence of American marten within a connectivity corridor. *Martes Working Group Newsletter* 9:4–5.
- Pulliainen, E. 1981a. A transect survey of small land carnivore and red fox populations on a subarctic fell in Finnish Forest Lapland over 13 winters. *Annales Zoologici Fennici* 18:270–278.
- Pulliainen, E. 1981b. Food and feeding habits of the pine marten in Finnish Forest Lapland in winter. Pages 580–598 in *Worldwide Furbearer Conference Proceedings*. J.A. Chapman and D. Pursley, editors. Worldwide Furbearer Conference, Frostburg, Maryland, USA.
- Pulliainen, E. 1981c. Winter habitat selection, home range, and movements of the pine marten (*Martes martes*) in a Finnish Lapland forest. Pages 1068–1087 in *Worldwide Furbearer*

- Conference Proceedings. J.A. Chapman and D. Pursley, editors. Worldwide Furbearer Conference, Frostburg, Maryland, USA.
- Pulliainen, E. 1984. Use of the home range by pine martens (*Martes martes* L.). *Acta Zoologica Fennica* 171:271–274.
- Purcell, K.L., A.K. Mazzoni, S.R. Mori, and B.B. Boroski. 2009. Resting structures and resting habitat of fishers in the southern Sierra Nevada, California. *Forest Ecology and Management* 258:2696–2706.
- Putnam, R.J. 1984. Facts from faeces. *Mammal Review* 14:79–97.
- Quann, J.D. 1985. Fundy National Park American marten reintroduction program, 1985. Unpublished report to Environment Canada, Parks Canada, Natural Resources Conservation, Fundy National Park, New Brunswick, Canada.
- Quick, H.F. 1956. Effects of exploitation on a marten population. *Journal of Wildlife Management* 20:267–274.
- Quigley, H.B., and P.G. Crawshaw. 1989. Use of ultralight aircraft in wildlife radio telemetry. *Wildlife Society Bulletin* 17:330–340.
- Quigley, T.M., R.W. Haynes, and R.T. Graham, editors. 1996. Integrated scientific assessment for ecosystem management in the interior Columbia Basin. USDA Forest Service, General Technical Report PNW-GTR-382.
- Quinn, D.B., editor. 1979. *New American world: a documentary history of North America to 1612*. Vol. 1. Macmillan Press, London, UK.
- Quinn, P.J., M.E. Carter, B. Markey, and G.R. Carter. 1999. *Clinical veterinary microbiology*. Elsevier, Philadelphia, Pennsylvania, USA.

- R Development Core Team. 2009. R: a language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org> (accessed May 2011).
- Raclot, T., and R. Groscolas. 1995. Selective mobilization of adipose tissue fatty acids during energy depletion in the rat. *Journal of Lipid Research* 36:2164–2173.
- Raclot, T., E. Mioskowski, A.C. Bach, and R. Groscolas. 1995. Selectivity of fatty acid mobilization: a general metabolic feature of adipose tissue. *American Journal of Physiology* 269:R1060–R1067.
- Rademacher, U., W. Jakob, and I. Bockhardt. 1999. *Cryptosporidium* infection in beech martens (*Martes foina*). *Journal of Zoo and Wildlife Medicine* 30:421–422.
- Rafinesque, C.S. 1819. Description of a new species of North American marten (*Mustela vulpina*). *American Journal of Science* 1:82–84.
- Raine, R.M. 1981. Winter food habits, responses to snow cover and movements of fisher (*Martes pennanti*) and marten (*Martes americana*) in southeastern Manitoba. Thesis, University of Manitoba, Winnipeg, Canada.
- Raine, R.M. 1982. Ranges of juvenile fisher, *Martes pennanti*, and marten, *Martes americana*, in southeastern Manitoba. *Canadian Field-Naturalist* 96:431–438.
- Raine, R.M. 1983. Winter habitat use and responses to snow cover of fisher (*Martes pennanti*) and marten (*Martes americana*) in southeastern Manitoba. *Canadian Journal of Zoology* 61:25–34.
- Raine, R.M. 1987. Winter food habits and foraging behaviour of fishers (*Martes pennanti*) and martens (*Martes americana*) in southeastern Manitoba. *Canadian Journal of Zoology* 65:745–747.

- Ralls, K., D.B. Siniff, T.D. Williams, and V.B. Kuechle. 2006. An intraperitoneal radio transmitter for sea otters. *Marine Mammal Science* 5:376–381.
- Ramsden, R., and D. Johnston. 1975. Studies on the oral infectivity of rabies virus in carnivora. *Journal of Wildlife Diseases* 11:318–324.
- Rand, A.L. 1944. The status of the fisher *Martes pennanti* (Erxleben), in Canada. *Canadian Field-Naturalist* 58:77–81.
- Randall, D.A., J. Marino, D.T. Haydon, C. Sillero-Zubiri, D.L. Knobel, L.A. Tallents, D.W. Macdonald, and M.K. Laurenson. 2006. An integrated disease management strategy for the control of rabies in Ethiopian wolves. *Biological Conservation* 131:151–162.
- Raphael, M.G. 1984. Wildlife populations in relation to stand age and area in Douglas-fir forests of northwestern California. Pages 259–274 *in* Fish and wildlife relationships in old-growth forests: proceedings of a symposium. W.R. Meehan, T.R. Merrell, Jr., and T.A. Hanley, editors. American Institute of Fisheries Research Biologists, Juneau, Alaska, USA.
- Raphael, M.G. 1994. Techniques for monitoring populations of fishers and American martens. Pages 224–240 *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Raphael, M.G., and L.L.C. Jones. 1997. Characteristics of resting and denning sites of American martens in central Oregon and western Washington. Pages 146–165 *in* *Martes*: taxonomy, ecology, techniques, and management. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.

- Raphael, M.G., R. Molina, C.H. Flather, R. Holthausen, R.L. Johnson, B.G. Marcot, D.H. Olson, J.D. Peine, C.H. Sieg, and C.S. Swanson. 2007. A process for selection and implementation of conservation approaches. Pages 334–362 in Conservation of rare or little-known species: biological, social, and economic considerations. M.G. Raphael and R. Molina, editors. Island Press, Washington, D.C., USA.
- Raphael, M.G., M.J. Wisdom, M.M. Rowland, R.S. Holthausen, B.C. Wales, B.G. Marcot, and T.D. Rich. 2001. Status and trends of habitats of terrestrial vertebrates in relation to land management in the interior Columbia River Basin. *Forest Ecology and Management* 153:63–87.
- Rasmussen, A.M., A.B. Madsen, T. Asferg, B. Jensen, and M. Rosengaard. 1986. Investigations of the stone marten (*Martes foina*) in Denmark. *Danske Vildtundersoegelser* 41:1–39.
- Rausch, R.L. 1977. The specific distinction of *Taenia twitchelli* Schwartz, 1924 from *T. martis* (Zeder, 1803) (Cestoda: Taeniidae). Pages 357–366 in *Excerta parasitologica en memoria del Doctor Eduardo Caballero y Caballero*. Universidad Nacional Autónoma de México. Instituto Biología, Publicaciones especiales No. 4. México.
- Rausch, R.L. 1994. Transberingian dispersal of cestodes in mammals. *International Journal for Parasitology* 24:1203–1212.
- Rausch, R.L. 2003. *Taenia pencei* n. sp. from the ringtail, *Bassariscus astutus* (Carnivora: Procyonidae), in Texas, U.S.A. *Comparative Parasitology* 70:1–10.
- Rausch, R.L., F.H. Fay, and F.S.L. Williamson. 1990. The ecology of *Echinococcus multilocularis* (Cestoda, Taeniidae) on St. Lawrence Island, Alaska. II. Helminth populations in the definitive host. *Annales de Parasitologie Humaine et Comparee* 65:131–140.

- Ray, A.J. 1987. The fur trade in North America: an overview from a historical geographical perspective. Pages 21–30 *in* Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Ray, J.C. 2000. Mesocarnivores of northeastern North America: status and conservation issues. WCS Working Paper No. 15. Wildlife Conservation Society, Bronx, New York, USA.
- Ray, J.C., and W.J. Zielinski. 2008. Track stations. Pages 75–109 *in* Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Rayfield, B., A. Moilanen, and M.-J. Fortin. 2009. Incorporating consumer-resource spatial interactions in reserve design. *Ecological Modelling* 220:725–733.
- Raymond, W.O. 1950. The River St. John, its physical features, legends and history from 1604 to 1784. Second edition. J. C. Webster, editor. Tribune Press, Sackville, New Brunswick, Canada. First published 1910 by J.A. Bowes, St. John, New Brunswick.
- Reading, R.P., and T.W. Clark 1996. Carnivore reintroductions: an interdisciplinary examination. Pages 296–336 *in* Carnivore behavior, ecology, and evolution. Volume 2. J.L. Gittleman, editor. Cornell University Press, Ithaca, New York, USA.
- Rego, P.W. 1989. Wildlife investigation: fisher reintroduction, 10/1/88–9/30/89. Unpublished report, Project number W-49-R-14, Connecticut Department of Environmental Protection, Wildlife Division, Burlington, USA.
- Rego, P.W. 1990. Wildlife investigation: fisher reintroduction, 10/1/89–9/30/90. Unpublished report, Project number W-49-R-14, Connecticut Department of Environmental Protection, Wildlife Division, Burlington, USA.

- Rego, P.W. 1991. Wildlife investigation: fisher reintroduction, 10/1/90–9/30/91. Unpublished report, Project number W-49-R-14, Connecticut Department of Environmental Protection, Wildlife Division, Burlington, USA.
- Reid, D.G., W.E. Melquist, J.D. Woolington, and J.M. Noll. 1986. Reproductive effects of intraperitoneal transmitter implants in river otters. *Journal of Wildlife Management* 50:92–94.
- Reid, F., and K. Helgen. 2008. *Martes pennanti*. IUCN Red List of Threatened Species. Version 2010.4. www.iucnredlist.org (accessed 24 February 2011).
- Reid, W.V., and G.M. Mace. 2003. Taking conservation biology to new levels in environmental decision-making. *Conservation Biology* 17:943–945.
- Reig, S. 1992. Geographic variation in pine marten (*Martes martes*) and beech marten (*M. foina*) in Europe. *Journal of Mammalogy* 73:744–769.
- Reinhardt, E., and N.L. Crookston. 2003. The fire and fuels extension to the forest vegetation simulator. USDA Forest Service, General Technical Report RMRS-GTR-116.
- Reinhardt, H. 1929. Beitrag zur zucht und jugendentwicklung des steinmarders. *Deutsche Pelztierzuchter* 15:445–448.
- Renard, A., M. Lavoie, and S. Larivière. 2008. Differential footload of male and female fisher, *Martes pennanti*, in Quebec. *Canadian Field-Naturalist* 122:269–270.
- Reno, M.A., K.R. Rulon, and C.E. James. 2008. Fisher monitoring within two industrially managed forests of northern California. Unpublished progress report to California Department of Fish and Game. Sierra Pacific Industries, Anderson, California, USA.
- Rettie, A. 1971. Summary of marten and fisher transplanting in Parry Sound Forest District in 1956–63. Unpublished report to Ontario Ministry of Natural Resources, Toronto, Canada.

- Rettie, W.J., and F. Messier. 2000. Hierarchical habitat selection by woodland caribou: its relationship to limiting factors. *Ecography* 23:466–478.
- Rezendes, P. 1992. *Tracking and the art of seeing: how to read animal tracks and sign*. Camden House Publishing, Charlotte, Vermont, USA.
- Rhoads, S.N. 1902. Synopsis of the American martens. *Proceedings of the Academy of Natural Sciences, Philadelphia* 54:443–460.
- Rhoads, S.N. 1903. *The mammals of Pennsylvania and New Jersey: a biographic, historic and descriptive account*. Privately printed, Philadelphia, Pennsylvania, USA.
- Ribas, A., C. Milazzo, P. Foronda, and J.C. Casanova. 2004. New data on helminths of stone marten, *Martes foina* (Carnivora, Mustelidae), in Italy. *Helminthologia* 41:59–61.
- Riddle, A.E., K.L. Pilgrim, L.S. Mills, K.S. McKelvey, and L.F. Ruggiero. 2003. Identification of mustelids using mitochondrial DNA and non-invasive sampling. *Conservation Genetics* 4:241–243.
- Rissler, L.J., R.J. Hijmans, C.H. Graham, C. Moritz, and D.B. Wake. 2006. Phylogeographic lineages and species comparisons in conservation analyses: a case study of California herpetofauna. *The American Naturalist* 167:655–666.
- Robitaille, J.-F. 2000. Management and conservation of mustelids in Ontario and eastern Canada. Pages 77–96 in *Mustelids in a modern world: management and conservation aspects of small carnivore:human interactions*. H.I. Griffiths, editor. Backhuys Publishers, Leiden, The Netherlands.
- Robitaille, J.-F., and K. Aubry. 2000. Occurrence and activity of American martens *Martes americana* in relation to roads and other routes. *Acta Theriologica* 45:137–143.

- Robitaille, J.-F., and E.W. Cobb. 2003. Indices to estimate fat depots in American marten *Martes americana*. *Wildlife Biology* 9:113–121.
- Robitaille, J.-F., and K. Jensen. 2005. Additional indices to estimate fat contents in fisher *Martes pennanti* populations. *Wildlife Biology* 11:263–269.
- Roche, T.R. 2008. The use of baited hair traps and genetic analysis to determine the presence of pine marten. Thesis, Waterford Institute of Technology, Ireland.
- Rodgers, A.R. 2001. Tracking animals with GPS: The first 10 years. Pages 1–10 *in* Tracking animals with GPS. A.M. Sibbald and I.J. Gordon, editors. The Macaulay Institute, Aberdeen, Scotland.
- Rodgers, A.R., R.S. Rempel, and K.F. Abraham. 1996. A GPS-based telemetry system. *Wildlife Society Bulletin* 24:559–566.
- Rodriguez, A., and E. Carbonell. 1998. Gastrointestinal parasites of the Iberian lynx and other wild carnivores from central Spain. *Acta Parasitologica* 43:128–136.
- Roemer, G.W., M.E. Gompper, and B.V. Valkenburgh. 2009. The ecological role of the mammalian mesocarnivore. *BioScience* 59:165–173.
- Rognrud, M. 1983. General wildlife restocking in Montana, 1941–1982. Final report, Federal Aid in Wildlife Restoration Project W-5-D, Montana Department of Fish, Wildlife, and Parks, Helena, USA.
- Romashov, B.V. 2001. Three capillariid species (Nematoda, Capillariidae) from carnivores (Carnivora) and discussion of system and evolution of the nematode family Capillariidae. 2. *Eucoleus trophimenkovi* sp. n. from the marten *Martes martes* and discussion of system and evolution of the nematode family Capillariidae. *Zoologicheskyy Zhurnal* 80:145–154.

- Romesburg, H.C. 1981. Wildlife science: gaining reliable knowledge. *Journal of Wildlife Management* 45:293–313.
- Rondinini, C., and L. Boitani. 2002. Habitat use by beech martens in a fragmented landscape. *Ecography* 25:257–264.
- Roon, D.A., M.E. Thomas, K.C. Kendall, and L.P. Waits. 2005. Evaluating mixed samples as a source of error in non-invasive genetic studies using microsatellites. *Molecular Ecology* 14:195–201.
- Roon, D.A., L.P. Waits, and K.C. Kendall. 2003. A quantitative evaluation of two methods for preserving hair samples. *Molecular Ecology Notes* 3:163–166.
- Root, T.L., J.T. Price, K.R. Hall, S.H. Schneider, C. Rosenzweig, and J.A. Pounds. 2003. Fingerprints of global warming on wild animals and plants. *Nature* 421:57–60.
- Rosalino, L.M., J. Rosário, and M. Santos-Reis. 2009. The role of habitat patches on mammalian diversity in cork oak agroforestry systems. *Acta Oecologica* 35:507–512.
- Rosalino, L.M., and M. Santos-Reis. 2009. Fruit consumption by carnivores in Mediterranean Europe. *Mammal Review* 39:67–78.
- Rosatte, R., D. Donovan, M. Allan, L. Bruce, T. Buchanan, K. Sobey, B. Stevenson, M. Gibson, T. MacDonald, and M. Whalen. 2009. The control of raccoon rabies in Ontario Canada: proactive and reactive tactics, 1994–2007. *Journal of Wildlife Diseases* 45:772.
- Roscoe, D. 1993. Epizootiology of canine distemper in New Jersey raccoons. *Journal of Wildlife Diseases* 29:390–395.
- Rosellini, S., E. Osorio, A. Ruiz-González, A. Piñeiro, and I. Barja. 2008. Monitoring the small-scale distribution of sympatric European pine martens (*Martes martes*) and stone martens

- (*Martes foina*): a multievidence approach using faecal DNA analysis and camera-traps. *Wildlife Research* 35:434–440.
- Rosenberg, K.V., and M.G. Raphael. 1986. Effects of forest fragmentation on vertebrates in Douglas-fir forests. Pages 263–272 in *Wildlife 2000: modeling habitat relationships of terrestrial vertebrates*. J. Verner, M.L. Morrison, and C.J. Ralph, editors. University of Wisconsin Press, Madison, USA.
- Rosenburg, D.K., K.A. Swindle, and R.G. Anthony. 1994. Habitat associations of California red-backed voles in young and old-growth forests in western Oregon. *Northwest Science* 68:266–272.
- Rosenzweig, M.L. 1981. A theory of habitat selection. *Ecology* 62:327–335.
- Roughton, R.D., and M.W. Sweeny. 1982. Refinements in scent-station methodology for assessing trends in carnivore populations. *Journal of Wildlife Management* 46:217–229.
- Roussiakis, S.J. 2002. Musteloids and feloids (Mammalia, Carnivora) from the late Miocene locality of Pikermi (Attica, Greece). *Geobios* 35:699–719.
- Rouvinen-Watt, K., A.-M. Mustonen, R. Conway, C. Pal, L. Harris, S. Saarela, U. Strandberg, and P. Nieminen. 2010. Rapid development of fasting-induced hepatic lipidosis in the American mink (*Neovison vison*): effects of food deprivation and re-alimentation on body fat depots, tissue fatty acid profiles, hematology and endocrinology. *Lipids* 45:111–128.
- Rovero, F., and A.R. Marshall. 2009. Camera trapping photographic rate as an index of density in forest ungulates. *Journal of Applied Ecology* 46:1011–1017.
- Rowcliffe, J.M., C. Carbone, P.A. Jansen, R. Kays, and B. Kranstauber. 2011. Quantifying the sensitivity of camera traps: an adapted distance sampling approach. *Methods in Ecology and Evolution*: published online March 1, 2011. DOI 10.1111/j.2041-

210X.2011.00094.x.

- Rowcliffe, J.M., J. Field, S.T. Turvey, and C. Carbone. 2008. Estimating animal density using camera traps without the need for individual recognition. *Journal of Applied Ecology* 45:1228–1236.
- Roy, K.D. 1991. Ecology of reintroduced fishers in the Cabinet Mountains of northwest Montana. Thesis, University of Montana, Missoula, USA.
- Royle, A.J., and J.D. Nichols. 2003. Estimating abundance from repeated presence-absence data or point counts. *Ecology* 84:777–790.
- Royle, J.A., J.D. Nichols, K.U. Karanth, and A. Gopalaswamy. 2009. A hierarchical model for estimating density in camera-trap studies. *Journal of Applied Ecology* 46:118–127.
- Royle, J.A., J.R. Stanley, and P.M. Lukacs. 2008. Statistical modeling and inference from carnivore survey data. Pages 293–312 *in* Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Rozhnov, V.V., I.G. Meschersky, S.L. Pishchulina, and L.V. Simakin. 2010. Genetic analysis of sable (*Martes zibellina*) and pine marten (*M. martes*) populations in sympatric part of distribution area in the Northern Urals. *Russian Journal of Genetics* 46:488–492.
- Ruette, S., J-M. Vandel, G. Gayet, and M. Alberet. 2005. Caractéristiques paysagères et habitat diurne de la martre dans une zone de Bresse. ONCFS Rapport Scientifique.
- Ruggiero, L.F., R.F. Holthausen, B.G. Marcot, K.B. Aubry, J.W. Thomas, and E.C. Meslow. 1988. Ecological dependency: the concept and its implications for research and management. *Transactions of the North American Wildlife and Natural Resources Conference* 53:115–126.

- Ruggiero, L.F., D.E. Pearson, and S.E. Henry. 1998. Characteristics of American marten den sites in Wyoming. *Journal of Wildlife Management* 62:663–673.
- Ruiz-González, A. 2011. Phylogeography and non-invasive landscape genetics of the European pine marten (*Martes martes* L. 1758): insights into ancient and contemporary processes shaping genetic variation. Dissertation, Universidad del País Vasco, Spain.
- Ruiz-González, A., J. Rubines, O. Berdión, and B.J. Gómez-Moliner. 2008. A non-invasive genetic method to identify the sympatric mustelids pine marten (*Martes martes*) and stone marten (*Martes foina*): preliminary distribution survey on the northern Iberian Peninsula. *European Journal of Wildlife Research* 54:253–261.
- Ruiz-Olmo, J., and J.M. López-Martín. 1995. Marta. Pages 88–92 in *Els grans mamífers de Catalunya i Andorra*. J. Ruíz-Olmo, and À. Aguilar, editors. Lynx Editions, Barcelona, Spain.
- Ruiz-Olmo, J., X. Parellada, and J. Porta. 1988. Sobre la distribución y el hábitat de la marta (*Martes martes* L., 1758) en Cataluña. *Pirineos* 131:85–93.
- Rupprecht, C., K. Stöhr, and C. Meredith. 2001. Rabies. Pages 3–36 in *Infectious diseases of wild mammals*. E.S. Williams, and I.K. Barker, editors. Iowa State University Press, Ames, USA.
- Russell, Y., P. Evans, and G.H. Dodd. 1989. Characterization of the total lipid and fatty acid composition of rat olfactory mucosa. *Journal of Lipid Research* 30:877–884.
- Rutledge, L.Y., J.J. Holloway, B.R. Patterson, and B.N. White. 2009. An improved field method to obtain DNA for individual identification from wolf scat. *Journal of Wildlife Management* 73:1430–1435.

- Ryynänen, H.J., A. Tonteri, A. Vasemägi, and C.R. Primmer. 2007. A comparison of biallelic markers and microsatellites for the estimation of population and conservation genetic parameters in Atlantic salmon (*Salmo salar*). *Journal of Heredity* 7:692–704.
- Sacchi, O., and A. Meriggi. 1995. Habitat requirements of the stone marten (*Martes foina*) on the Tyrrhenian slopes of the northern Apennines. *Hystrix* 7:99–104.
- Saeki, M. 2006. *Martes* issues in the 21st century: lessons to learn from Asia. Pages 21–26 in *Martes* in carnivore communities. M. Santos-Reis, J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Safronov, V.M., and R.K. Anikin. 2000. Ecology of the sable, *Martes zibellina* (Carnivora, Mustelidae), in northeastern Yakutia. *Zoologicheskyy Zhurnal* 79:471–479. (in Russian with English abstract)
- Safronov V.M., E.W.S. Zakharov, and N.N. Smetanin. 2009. Numbers and ecology of the sable in the south Yakutia. International Union of Game Biologists, Abstracts from the 29th Annual Meeting, Moscow, Russia. (<http://www.newstaryi.ru/cd/docs/s4/Safronov%20V.M.pdf> (accessed 21 May 2011)).
- Sagarin, R. 2002. Historical studies of species’ responses to climate change: promise and pitfalls. Pages 127–163 in *Wildlife responses to climate change: North American case studies*. S.H. Schneider and T.L. Root, editors. Island Press, Washington, D.C., USA.
- Sajeev, T.K., S.K. Srivastava, M.G. Raphael, S. Dutt, N.K. Ramachandran, and P.C. Tyagi. 2002. Management of forests in India for biological diversity and forest productivity, a new perspective. Volume 3: Anaimalai Conservation Area (ACA). Wildlife Institute of India-USA Forest Service collaborative project report. Wildlife Institute of India, Dehra Dun.

- Salafsky, N., R. Margoluis, K.H. Redford, and J.G. Robinson. 2002. Improving the practice of conservation: a conceptual framework and research agenda for conservation science. *Conservation Biology* 16:1469–1479.
- Sálek, M., J. Hreisinger, F. Sedláček, and T. Albrecht. 2009. Corridor vs. hayfield matrix use by mammalian predators in an agricultural landscape. *Agriculture, Ecosystems and Environment* 134:8–13.
- Salwasser, H. 1995. Changing roles for wildlife professionals: where we've been and where we're headed. *Transactions of the Western Section of the Wildlife Society* 31:1–6.
- Samoilov, E.B. 2005. The new sable population in Transbaikalia. Pages 300–303 in *Conservation and rational use of plant and animal resources*. S.M. Muzika, editor. Agricultural Academy Press, Irkutsk, Russia.
- Samuel, W.M., M.J. Pybus, and A.A. Kocan. 2001. Parasitic diseases of wild mammals. Second edition. Iowa State University Press, Ames, USA.
- Sanchez, D.M., P.R. Krausman, T.R. Livingston, and P.S. Gipson. 2004. Persistence of carnivore scat in the Sonoran Desert. *Wildlife Society Bulletin* 32:366–372.
- Sandell, M. 1990. The evolution of seasonal delayed implantation. *Quarterly Review of Biology* 65:23–42.
- Sano, M., K. Araki, A. Ishii, M. Maeda, and K. Arisaka. 1978. Epidemiological survey of lung fluke *Paragonimus miyazakii* in Shizuoka Prefecture Japan. *International Journal of Zoonoses* 5:75–79.
- Santella, R.M., and S.E. Harkinson. 2008. Biosampling methods. Pages 53–62 in *Molecular epidemiology: applications in cancer and other human diseases*. T.R. Rebbeck, C.B. Ambrosone, and P.G. Shields, editors. Informa Healthcare, New York, USA.

- Santos, M.J., and M. Santos-Reis. 2010. Stone marten (*Martes foina*) habitat in a Mediterranean ecosystem: effects of scale, sex and interspecific interactions. *European Journal of Wildlife Research* 56:275–286.
- Santos, N., C. Almendra, and L. Tavares. 2009. Serologic survey for canine distemper virus and canine parvovirus in free-ranging wild carnivores from Portugal. *Journal of Wildlife Diseases* 45:221–226.
- Santos-Reis, M., J.D.S. Birks, E.C. O’Doherty, and G. Proulx, editors. 2006. *Martes* in carnivore communities. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Santos-Reis, M., M.J. Santos, S. Lourenço, J.T. Marques, I. Pereira, and B. Pinto. 2004. Relationships between stone martens, genets and cork oak woodlands in Portugal. Pages 147–172 in *Martens and fishers (Martes) in human-altered environments: an international perspective*. D.J. Harrison, A.K. Fuller, and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Sarmento, P., J. Cruz, C. Eira, and C. Fonseca. 2009. Evaluation of camera trapping for estimating red fox abundance. *Journal of Wildlife Management* 73:1207–1212.
- SAS 1999. SAS, Version 8.0. SAS Institute, 100 SAS Campus Drive, Cary, North Carolina, 27513-2414.<Au: chapter 6 cites SAS 9.2; revise bibliography entry?>
- Sato, H., Y. Ihama, T. Inaba, M. Yagisawa, and H. Kamiya. 1999a. Helminth fauna of carnivores distributed in north-western Tohoku, Japan, with special reference to *Mesocestoides paucitesticulus* and *Brachylaima tokudai*. *Journal of Veterinary Science* 61:1339–1342.
- Sato, H., T. Inaba, Y. Ihama, and H. Kamiya. 1999b. Parasitological survey on wild carnivora in north-western Tohoku, Japan. *Journal of Veterinary Medical Science* 61:1023–1026.
- Sato, J.J., T. Hosoda, M. Wolsan, K. Tsuchiya, Y. Yamamoto, and H. Suzuki. 2003.

- Phylogenetic relationships and divergence times among mustelids (Mammalia: Carnivora) based on nucleotide sequences of the nuclear interphotoreceptor retinoid binding protein and mitochondrial cytochrome *b* genes. *Zoological Science* 20:243–264.
- Sato, J.J., M. Wolsan, S. Minami, T. Hosoda, M.H. Sinaga, K. Hiyuma, Y. Yamaguchi, and H. Suzuki. 2009a. Deciphering and dating the red panda's ancestry and early adaptive radiation of Musteloidea. *Molecular Phylogenetics and Evolution* 53:907–922.
- Sato, J.J., S.P. Yasuda, and T. Hosoda. 2009b. Genetic diversity of the Japanese marten (*Martes melampus*) and its implications for the conservation unit. *Zoological Science* 26:457–466.
- Schaefer, J.A., and F. Messier. 1995. Habitat selection as a hierarchy: the spatial scales of winter foraging by muskoxen. *Ecography* 18:333–344.
- Scharpf, R.F., editor. 1993. Diseases of Pacific Coast conifers. USDA Forest Service, Agricultural Handbook 521.
- Scheller, R.M., J.B. Domingo, B.R. Sturtevant, J.S. Williams, A. Rudy, E.J. Gustafson, and D.J. Mladenoff. 2007. Design, development, and application of LANDIS-II, a spatial landscape simulation model with flexible temporal and spatial resolution. *Ecological Modelling* 201:409–419.
- Scherer, P.E., S. Williams, M. Fogliano, G. Baldini, and H.F. Lodish. 1995. A novel serum protein similar to C1q, produced exclusively in adipocytes. *Journal of Biological Chemistry* 270:26746–26749.
- Schipper, J., K.M. Helgen, J.L. Belant, J. González-Maya, E. Eizirik, and M. Tsuchiya-Jerep. 2009. Small carnivores in the Americas: reflections, future research and conservation priorities. *Small Carnivore Conservation* 41:1–2.

- Schlegel, M.W., S.E. Knapp, and R.E. Millemann. 1968. "Salmon poisoning" disease. V. Definitive hosts of the trematode vector, *Nanophyetus salmincola*. *Journal of Parasitology* 54:770–774.
- Schlexer, F.V. 2008. Attracting animals to detection devices. Pages 262–292 in *Noninvasive survey methods for carnivores*. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Schmidt, F. 1942. Naturgeschichte des baum-und des steinmarders. Mono. Der Wildsaugeterre. Baud 10:1–258 (in German).
- Schmitt, N., J.M. Saville, L. Friis, and P.L. Stovell. 1976. Trichinosis in British Columbia wildlife. *Canadian Journal of Public Health* 67:21–24.
- Schneider, R. 1997. Simulated spatial dynamics of martens in response to habitat succession in the Western Newfoundland Model Forest. Pages 419–436 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Schneider, R.R., and P. Yodzis. 1994. Extinction dynamics in the American marten (*Martes americana*). *Conservation Biology* 8:1058–1068.
- Schneider, S.H., and T.L. Root, editors. 2002. *Wildlife responses to climate change: North American case studies*. Island Press, Washington, D.C., USA.
- Scholander, P.F., V. Walters, R. Hock, and L. Irving. 1950. Body insulation of some arctic and tropical mammals and birds. *Biological Bulletin* 99:225–236.
- Schoo, G., K. Pohlmeyer, and M. Stoye. 1994. A contribution to the helminth fauna of the stone marten (*Martes foina* Erxleben 1777). *Zeitschrift für Jagdwissenschaft* 40:84–90.
- Schorger, A.W. 1942. *Extinct and endangered mammals and birds of the Upper Great Lake*

- region. Transactions of the Wisconsin Academy of Sciences, Arts and Letters 34:23–44.
- Schröpfer, R., W. Biedermann, and H. Szczesniak. 1989. Saisonale Aktionsraumveränderungen beim Baumarder *Martes martes* L. 1758. Pages 433–442 in Populationsökologie marderartiger säugetiere 2: wissenschaftliche beiträge 1989/37 (P39). M. Stubbe, editor. Martin-Luther-Universität, Halle-Wittenberg, Deutschland.
- Schröpfer, R., P. Wiegand, and H.H. Hogrefe. 1997. The implications of territoriality for the social system of the European pine marten *Martes martes* (L., 1758). Zeitschrift für Säugetierkunde 62:209–218.
- Schulte, R., and U. Fielitz. 2001. High performance GPS collars, use of the latest available technology. Pages 97–101 in Tracking animals with GPS. A.M. Sibbald and I.J. Gordon, editors. The Macaulay Institute, Aberdeen, Scotland, UK.
- Schumaker, N. 1998. A users guide to the PATCH model. U.S. Environmental Protection Agency, Office of Research and Development EPA/600/R-98/135. Washington, D.C., USA.
- Schumaker, N. H., T. Ernst, D. White, J. Baker, and P. Haggerty. 2004. Projecting wildlife responses to alternative future landscapes in Oregon's Willamette basin. Ecological Applications 14:381–400.
- Schupbach, T.A.<Au: spelled Schuback in Table 20.1, Schupbach in Table 6.3; please resolve> 1977. History, status, and management of the pine marten in the upper peninsula of Michigan. Thesis, Michigan Technological University, Houghton, USA.
- Schwartz, M.K. 2007. Ancient DNA confirms native Rocky Mountain fisher (*Martes pennanti*) avoided early 20th century extinction. Journal of Mammalogy 88:921–925.

- Schwartz, M.K., J.P. Copeland, N.J. Anderson, J.R. Squires, R.M. Inman, K.S. McKelvey, K.L. Pilgrim, L.P. Waits, and S.A. Cushman. 2009. Wolverine gene flow across a narrow climatic niche. *Ecology* 90:3222–3232.
- Schwartz, M.K., G. Luikart, and R.S. Waples. 2007. Genetic monitoring as a promising tool for conservation and management. *Trends in Ecology & Evolution* 22:25–33.
- Schwartz, M.K., and S.L. Monfort. 2008. Genetic and endocrine tools for carnivore surveys. Pages 238–262 *in* Noninvasive survey methods for carnivores. R.A. Long, P. MacKay, W.J. Zielinski, and J.C. Ray, editors. Island Press, Washington, D.C., USA.
- Schwartz, M.K., D.A. Tallmon, and G. Luikart. 1999. Using genetics to estimate the size of wild populations: many methods, much potential, uncertain utility. *Animal Conservation* 2:320–322.
- Schwartz, M.K., D.A. Tallmon, and G. Luikart. 2001. Review of DNA-based census and effective population size estimators. *Animal Conservation* 1:293–299.
- Scott, W.B., and H.F. Osborn. 1887. Preliminary account of the fossil mammals from the White River Formation. *Bulletin of the Cambridge Museum of Comparative Zoology*, Vol. 13.
- Seddon, J.M., H.G. Parker, E.A. Ostrander, and H. Ellegren. 2005. SNPs in ecological and conservation studies: a test in the Scandinavian wolf population. *Molecular Ecology* 14:503–511.
- Seddon, P.J., D.P. Armstrong, and R.F. Maloney. 2007. Developing the science of reintroduction biology. *Conservation Biology* 21:303–312.
- Seddon, P.J., and R.F. Maloney. 2004. Tracking wildlife radio-tag signals by light fixed-wing aircraft. Department of Conservation, Technical Series 30, Wellington, New Zealand.

- Sedgeley, J.A. 2001. Quality of cavity microclimate as a factor influencing selection of maternity roosts by a tree-dwelling bat, *Chalinolobus tuberculatus*, in New Zealand. *Journal of Applied Ecology* 38:425–438.
- Seglund, A.E. 1995. The use of rest sites by the Pacific fisher. Thesis, Humboldt State University, Arcata, California, USA.
- Segovia, J.-M., J. Torres, J. Miquel, E. Sospedra, R. Guerrero, and C. Feliu. 2007. Analysis of helminth communities of the pine marten, *Martes martes*, in Spain: mainland and insular data. *Acta Parasitologica* 52:156–164.
- Seiler, A., H.H. Kruger, and A. Festetics. 1994. Reaction of a male stone marten (*Martes foina* Erxleben, 1977) to foreign feces within its territory—a field experiment. *Zeitschrift fur Säugetierkunde* 59:58–60.
- Self, S., and S. Kerns. 2001. Pacific fisher use of a managed forest landscape in northern California. Unpublished Wildlife Research Paper No. 6, Sierra Pacific Industries, Redding, California, USA.
- Serfass, T.L., R.P. Brooks, and W.M. Tzilkowski. 2001. Fisher reintroduction in Pennsylvania. Final report of the Pennsylvania fisher reintroduction project, Frostburg State University, Maryland, USA.
- Seton, E.T. 1909. Life-histories of northern animals, an account of the mammals of Manitoba. Volume 2. Flesh-eaters. Charles Scribner's Sons, New York, USA.
- Seton, E.T. 1926. *Animals*. Doubleday, Doran & Company, Garden City, New York, USA.
- Seton, E.T. 1929. Lives of game animals: an account of those land animals in America, north of the Mexican border, which are considered “game.” Volume 2, Part 2: bears, cats, badgers, skunks, and weasels. Doubleday, Garden City, New York, USA.

- Seville, R.S., and E.M. Addison. 1995. Nongastrointestinal helminths in marten (*Martes americana*) from Ontario, Canada. *Journal of Wildlife Diseases* 31:529–533.
- Shafer, A.B.A., C.I. Cullingham, S.D. Côté, and D.W. Coltman. 2010. Of glaciers and refugia: a decade of study sheds new light on the phylogeography of northwestern North America. *Molecular Ecology* doi: 10.1111/j.1365-294X.2010.04828.x.
- Shaffer, K.E., and W.F. Laudenslayer. 2006. Fire and animal interactions. Pages 118–144 *in* Fire in California ecosystems. N.G. Sugihara, J.W. van Wagtendonk, K.E. Shaffer, J. Fites-Kaufman, and A.E. Thode, editors. University of California Press, Berkeley, USA.
- Shahan, A.E., R.L. Knudson, H.R. Seibold, and C.N. Dale. 1947. Aujeszky's disease (pseudorabies): a review with notes on two strains of the virus. *North American Veterinarian* 28:440–449.
- Shattuck, M.R., and S.A. Williams. 2010. Arboreality has allowed for the evolution of increased longevity in mammals. *Proceedings of the National Academy of Sciences, USA* 107:4635–4639.
- Shaw, G., and J. Livingstone. 1992. The pine marten—its reintroduction and subsequent history in the Galloway Forest Park. *Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 3rd Series*, 67:1–7.
- Shaw, M. 1987. Mount Carleton wilderness: New Brunswick's unknown north. Fiddlehead Poetry and Books and Goose Lane Editions, Fredericton, New Brunswick, Canada.
- Sher, A. 1999. Traffic lights at the Beringian crossroads. *Nature* 397:103–104.
- Shimshony, A. 1997. Epidemiology of emerging zoonoses in Israel. *Emerging Infectious Diseases* 3:229–238.
- Shotwell, J.A. 1970. Pliocene mammals of southeast Oregon and adjacent Idaho. University of

- Oregon, *Bulletin of the Museum of Natural History* 17:1–103.
- Sidorovich, V.E., D.A. Krasko, and A.A. Dyman. 2005. Landscape-related differences in diet, food supply and distribution pattern of the pine marten, *Martes martes* in the transitional mixed forest of northern Belarus. *Folia Zoologica* 54:39–52.
- Sidorovich, V.E., D.A. Krasko, A.A. Sidorovich, I.A. Solovej, and A.A. Dyman. 2006. The pine marten's *Martes martes* ecological niche and its relationships with other vertebrate predators in the transitional mixed forest ecosystems of northern Belarus. Pages 109–126 in *Martes in carnivore communities*. M. Santos-Reis, J.D.S. Birks, E.C. O'Doherty, and G. Proulx, editors. Alpha Wildlife Publications, Sherwood Park, Alberta, Canada.
- Siivonen, L., and S. Sulkava. 1994. Pohjolan nisäkkäät (Mammals of northern Europe). Otava, Helsinki, Finland. (in Finnish)
- Silver, H. 1957. A history of New Hampshire game and furbearers. New Hampshire Fish and Game Department, Survey Report No. 6, Evans Printing Co., Concord, New Hampshire. USA.
- Silverman, J., M. Suckow, and S. Murthy. 2006. The IACUC handbook. Second edition. CRC Press, Boca Raton, Florida, USA.
- Simon, O., and J. Lang. 2007. Mit Hühneri auf marderfang—methods und fangerfolge in den wäldern um Frankfurt. *Natur und Museum* 137:1–11.
- Simon, T.L. 1980. An ecological study of the marten in the Tahoe National Forest, California. Thesis, California State University, Sacramento, USA.
- Simons, E.M. 2009. Influences of past and future forest management on the spatiotemporal dynamics of habitat supply for Canada lynx and American martens in northern Maine. Dissertation, University of Maine, Orono, USA.

- Simpson, V.R. 2001. Aleutian disease, mink and otters. *Veterinary Record* 149:720.
- Simpson, V.R., R.J. Panciera, J. Hargreaves, J.W. McGarry, S.F. Scholes, K.J. Bown, and R.J. Birtles. 2005. Myocarditis and myositis due to infection with Hepatozoon species in pine martens (*Martes martes*) in Scotland. *Veterinary Record* 156:442–446.
- Sims, R.A., W.D. Towill, K.A. Baldwin, and G.M. Wickware. 1989. Forest ecosystem classification for northwestern Ontario. Forestry Canada and Ontario Ministry of Natural Resources, OMNR NW Technical Development Unit, Thunder Bay, Ontario, Canada.
- Sinclair, A.R.E. 1991. Science and the practice of wildlife management. *Journal of Wildlife Management* 55:767–773.
- Sinclair, G. 1986. American marten live trapping results for re-introductions to Fundy and Kejimikujik National Parks. Environment Canada, Parks Canada, Natural Resources Conservation, Fundy National Park, New Brunswick, Canada.
- Sinclair, G. 1987. Plan update for the reintroduction of the American marten, Fundy National Park. Environment Canada, Parks Canada, Natural Resources Conservation, Fundy National Park, New Brunswick, Canada.
- Singleton, P.H., W.L. Gaines, and J.F. Lehmkuhl. 2002. Landscape permeability for large carnivores in Washington: a geographic information system weighted-distance and least-cost corridor assessment. USDA Forest Service, Pacific Northwest Research Station, Research Paper PNW-RP-549.
- Sinitsyn, A.A. 2001. The sable. Pages 94–109 *in* Acclimatization and biotechnical measures in game animal population management. N.N. Grakov, editor. All-Russian Research Institute of Hunting and Fur Farming, Kirov, Russia. (in Russian)
- Skalski, T., and I. Wierzbowska. 2008. Variation of insect assemblages in fox and marten faeces

- collected in southern Poland. *Annales Zoologici Fennici* 45:308–316.
- Skirnisson, K. 1986. Spelled Skinnirsson in ch. 6, Skirnisson in table 6.5; please resolve. 1986. Untersuchungen zum-raum-zeit-system freilebender steinmarder (*Martes foina* Erxleben 1777). *Beiträge zur Wildbiologie* 6:1–200.
- Skirnisson, K., and D. Feddersen. 1984. Experiences with implantations of transmitters in beech martens (*Martes foina*) living in the wild. *Zeitschrift fuer Jagdwissenschaft* 30:228–235.
- Slauson, K.M., R.L. Truex, and W.J. Zielinski. 2008. Determining the sex of American martens and fishers at track plate stations. *Northwest Science* 83:185–198.
- Slauson, K.M., and W.J. Zielinski. 2001. Distribution and habitat ecology of American martens and Pacific fishers in southwestern Oregon: progress report I, July 1–November 15, 2001. Unpublished report, USDA Forest Service, Pacific Southwest Research Station, Arcata, California, USA.
- Slauson, K.M., and W.J. Zielinski. 2003. Distribution and habitat associations of the Humboldt marten (*Martes americana humboldtensis*), and Pacific fisher (*Martes pennanti pacifica*) in Redwood National and State Parks—final report. Unpublished report, USDA Forest Service, Pacific Southwest Research Station, Arcata, California, USA.
- Slauson, K.M., and W.J. Zielinski. 2007. Strategic surveys for *Martes* populations in northwestern California: Mendocino National Forest. Unpublished report, USDA Forest Service, Pacific Southwest Research Station, Arcata, California, USA.
- Slauson, K.M., W.J. Zielinski, and J.P. Hayes. 2007. Habitat selection by American martens in coastal California. *Journal of Wildlife Management* 71:458–468.

- Slauson, K.M., W.J. Zielinski, and K.D. Stone. 2009. Characterizing the molecular variation among American marten (*Martes americana*) subspecies from Oregon and California. *Conservation Genetics* 10:1337–1341.
- Slough, B.G. 1989. Movements and habitat use by transplanted marten in the Yukon Territory. *Journal of Wildlife Management* 53:991–997.
- Slough, B.G. 1994. Translocations of American martens: an evaluation of factors in success. Pages 165–178 *in* Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Slough, B.G., R.H. Jessup, D.I. McKay, and A.B. Stephenson. 1987. Wild furbearer management in western and northern Canada. Pages 1062–1076 *in* Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Small, M.P., K.D. Stone, and J.A. Cook. 2003. American marten (*Martes americana*) in the Pacific Northwest: population differentiation across a landscape fragmented in time and space. *Molecular Ecology* 12:89–103.
- Smith, A.C., and J.A. Schaefer. 2002. Home range size and habitat selection by American marten in Labrador. *Canadian Journal of Zoology* 80:1602–1609.
- Smith, B.L. W.P. Burger, and F.J. Singer. 1998. An expandable radiocollar for elk calves. *Wildlife Society Bulletin* 26:113–117.
- Smith, D.A., K. Ralls, B.L. Cypher, and J.E. Maldonado. 2005. Assessment of scat-detection dog surveys to determine kit fox distribution. *Wildlife Society Bulletin* 33:897–904.

- Smith, D.A., K. Ralls, B. Davenport, B. Adams, and J.E. Maldonado. 2001. Canine assistants for conservationists. *Science* 291:435.
- Smith, D.A., K. Ralls, A. Hurt, B. Adams, M. Parker, B. Davenport, M.C. Smith, and J.E. Maldonado. 2003. Detection and accuracy rates of dogs trained to find scats of San Joaquin kit foxes (*Vulpes macrotis mutica*). *Animal Conservation* 6:339–346.
- Smith, D.W., R.O. Peterson, T.D. Drummer, and D.S. Sheputis. 1991. Over-winter activity and body temperature patterns in northern beavers. *Canadian Journal of Zoology* 69:2178–2182.
- Smith, J.B., J.A. Jenks, and R.W. Klaver. 2007. Evaluating detection probabilities for American marten in the Black Hills, South Dakota. *Journal of Wildlife Management* 71:2412–2416.
- Smith, K.F., D.F. Sax, and K.D. Lafferty. 2006. Evidence for the role of infectious disease in species extinction and endangerment. *Conservation Biology* 20:1349–1357.
- Smith, S., N. Aitken, C. Schwarz, and A. Morin 2004. Characterization of 15 single nucleotide markers for chimpanzees (*Pan troglodytes*). *Molecular Ecology Notes* 4:348–351.
- Snyder, J.E. 1984. Marten use of clearcuts and residual forest stands in western Newfoundland. Thesis, University of Maine, Orono, USA.
- Snyder, J. 1986. Updated status report on the marten (Newfoundland population) *Martes americana atrata*. Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ontario, Canada.
- Snyder, J., and J.A. Bissonette. 1987. Marten use of clearcuttings and residual forest stands in western Newfoundland. *Canadian Journal of Zoology* 65:169–174.

- Sobrino, R., J.P. Dubey, M. Pabon, N. Linarez, O.C. Kwok, J. Millan, M.C. Arnal, D.F. Luco, F. Lopez-Gatius, P. Thulliez, C. Gortazar, and S. Almeria. 2008. *Neospora caninum* antibodies in wild carnivores from Spain. *Veterinary Parasitology* 155:190–197.
- Sokal, R.R., and F.J. Rohlf. 1981. *Biometry*. Second edition. W. H. Freeman and Co., San Francisco, California, USA.
- Sommer, R., and N. Benecke. 2004. Late- and post-glacial history of the Mustelidae in Europe. *Mammal Review* 34:249–284.
- Sommer, S. 2005. The importance of immune gene variability (MHC) in evolutionary ecology and conservation. *Frontiers in Zoology* 2:1742–9994.
- Sørensen, P.G., I.M. Petersen, and O. Sand. 1995. Activities of carbohydrate and amino acid metabolizing enzymes from liver of mink (*Mustela vison*) and preliminary observations on steady state kinetics of the enzymes. *Comparative Biochemistry and Physiology B* 112:59–64.
- Soukkala, A.M. 1983. The effects of trapping on marten populations in Maine. Thesis, University of Maine, Orono, USA.
- Soutiere, E.C. 1979. Effects of timber harvesting on marten in Maine. *Journal of Wildlife Management* 43:850–860.
- Soutiere, E.C., and M.W. Coulter. 1975. Re-introduction of marten to the White Mountain National Forest, New Hampshire, 1975. Unpublished report, University of Maine, Orono, USA.
- Soutullo, A., V. Urios, M. Ferrer, and S.G. Penarrubia. 2006. Post-fledging behavior in golden eagles *Aquila chrysaetos*: onset of juvenile dispersal and progressive distancing from the

- nest. *International Journal of Avian Science* 148:307–212.<AU: 312 meant? pls check page numbers>
- Spencer, W.D., R.H. Barrett, and W.J. Zielinski. 1983. Marten habitat preferences in the northern Sierra Nevada. *Journal of Wildlife Management* 47:1181–1186.
- Spencer, W.D., H.L. Rustigian, R.M. Scheller, A. Syphard, J. Strittholt, and B. Ward. 2008. Baseline evaluation of fisher habitat and population status, and effects of fires and fuels management on fishers in the southern Sierra Nevada. Conservation Biology Institute, Final Report to USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA.
- Spencer, W., H. Rustigian-Romsos, J. Strittholt, R. Scheller, W. Zielinski, and R. Truex. 2011. Using occupancy and population models to assess habitat conservation opportunities for an isolated carnivore population. *Biological Conservation* 144:788–803.
- Spies, T.A. 1998. Forest structure: a key to the ecosystem. *Northwest Science* 72:34–39.
- Stallknecht, D.E. 2007. Impediments to wildlife disease surveillance, research, and diagnostics. *Current Topics in Microbiology and Immunology* 315:445–461.
- Statistics Canada. 2006. The fur industry: changing with the times. http://www41.statcan.ca/2006/1664/ceb1664_004-eng.htm (accessed 21 March 2011).
- Statistics Canada. 2009. Fur statistics 2008. Statistics Canada, Agriculture Division, Catalogue 23-013-X, Vol. 6, No. 1.
- Steck, F., and A. Wandeler. 1980. The epidemiology of fox rabies in Europe. *Epidemiologic Reviews* 2:71–96.
- Steinel, A., L. Munson, M. Van Vuuren, and U. Truyen. 2000. Genetic characterization of feline parvovirus sequences from various carnivores. *Journal of General Virology* 81:345–350.

- Steinel, A., C.R. Parrish, M.E. Bloom, and U. Truyen. 2001. Parvovirus infections in wild carnivores. *Journal of Wildlife Diseases* 37:594–607.
- Steinhagen, P., and W. Nebel. 1985. Distemper in stone martens (*Martes foina*, Erxl.) in Schleswig-Holstein. A contribution to the epidemiology of distemper. *Dtsch Tierarztl Wochenschr* 92:178–181.
- Steininger, F.F., and G. Wessely. 1999. From the Tethyan Ocean to the Paratethys Sea: Oligocene to Neogene stratigraphy, paleogeography and paleobiogeography of the circum-Mediterranean region and the Oligocene to Neogene basin evolution in Austria. *Mitteilungen der Österreichischen Geologischen* 92:95–116.
- Stephens, D.W., and J.R. Krebs. 1986. *Foraging theory*. Princeton University Press, New Jersey, USA.
- Stephens, S.L., R.E. Martin, and N.E. Clinton. 2007. Prehistoric fire area and emissions from California's forests, woodlands, shrublands and grasslands. *Forest Ecology and Management* 251:205–216.
- Stevens, M.S., and J.B. Stevens. 2003. Carnivora (Mammalia, Felidae, Canidae, and Mustelidae) from the earliest Hemphillian Screw Bean local fauna, Big Bend National Park, Brewster County, Texas. Pages 177–211 *in* *Vertebrate fossils and their context: contributions in honor of Richard H. Tedford*. *Bulletin of the American Museum of Natural History* 279, New York, USA.
- Stevens, S.S., and T.L. Serfass. 2005. Sliding behavior in nearctic river otters: locomotion or play? *Northeast Naturalist* 12:241–244.
- Steventon, J.D. 1979. Influence of timber harvesting upon winter habitat use by marten. Thesis, University of Maine, Orono, USA.

- Steventon, J.D., and J.T. Major. 1982. Marten use of habitat in a commercially-clearcut forest. *Journal of Wildlife Management* 46:175–182.
- Stier, N. 2000. Tagesverstecke des baummarders (*Martes martes* L.) in Südwest-Mecklenburg. *Beiträge zur Jagd- und Wildforschung* 25:165–182.
- Stone, K.D., and J.A.Cook. 2002. Molecular evolution of Holarctic martens (genus *Martes*, Mammalia: Carnivora: Mustelidae). *Molecular Phylogenetics and Evolution* 24:169–179.
- Stone, K.D., R.W. Flynn, and J.A. Cook. 2002. Post-glacial colonization of northwestern North America by the forest-associated American marten (*Martes americana*, Mammalia: Carnivora: Mustelidae). *Molecular Ecology* 11:2049–2063.
- Storch, I. 1988. Zur raumnutzung von baummardern. *Zeitschrift Fur Jagdwissenschaft* 34:115–119.
- Storch, I., E. Lindström, J. de Jounge. 1990. Habitat selection and food habitats of the pine marten in relation to competition with the red fox. *Acta Theriologica* 35:311–320.
- Storck, P., D.P. Lettenmaier, and S.M. Bolton. 2002. Measurement of snow interception and canopy effects on snow accumulation and melt in a mountainous maritime climate, Oregon, United States. *Water Resources Research* 38.
- <http://www.agu.org/journals/wr/wr0211/2002WR001281/index.html> (accessed 3 October 2010).
- Storfer, A., M.A. Murphy, S.F. Spear, R. Holderegger, and L.P. Waits. 2010. Landscape genetics: where are we now? *Molecular Ecology* 19:3496–3514.
- Strickland, M.A., and C.W. Douglas. 1981. The status of fisher in North America and its management in southern Ontario. Pages 1443–1458 *in* Worldwide Furbearer Conference Proceedings. J.A. Chapman and D. Pursley, editors. Worldwide Furbearer Conference,

- Frostburg, Maryland, USA.
- Strickland, M.A., and C.W. Douglas. 1987. Marten. Pages 531–546 *in* Wild furbearer management and conservation in North America. M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Ontario Trappers Association and Ontario Ministry of Natural Resources, Toronto, Canada.
- Strickland, M.A., C.W. Douglas, M.K. Brown, and G.R. Parsons. 1982a. Determining the age of fisher from cementum annuli of teeth. *New York Fish and Game Journal* 29:90–94.
- Strickland, M.A., C.W. Douglas, M. Novak, and M.P. Hunziger. 1982b. Fisher. Pages 586–598 *in* Wild mammals of North America: biology, management, economics. J.A. Chapman and G.A. Feldhamer, editors. Johns Hopkins University Press, Baltimore, Maryland, USA.
- Strickland, M.A., C.W. Douglas, M. Novak, and M.P. Hunziger. 1982c. Marten. Pages 599–612 *in* Wild mammals of North America: biology, management, economics. J.A. Chapman and G.A. Feldhamer, editors. Johns Hopkins University Press, Baltimore, Maryland, USA.
- Sturtevant, B.R., and J.A. Bissonette. 1997. Stand structure and microtine abundance in Newfoundland: implications for marten. Pages 182–198 *in* *Martes*: taxonomy, ecology, techniques and management. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Sugihara, N.G., J.W. van Wagendonk, K.E. Shaffer, J. Fites-Kaufman, and A.E. Thode. 2006. Fire in California's ecosystems. University of California Press, Berkeley, USA.
- Sugimoto, T., K. Miyoshi, D. Sakata, K. Nomoto, and S. Higashi. 2009. Fecal DNA-based discrimination between indigenous *Martes zibellina* and non-indigenous *Martes*

- melampus* in Hokkaido, Japan. *Mammal Study* 34:155–159.
- Sullivan, M.J. 1984. American marten re-introduction progress report, Fundy National Park, 1984. Environment Canada, Parks Canada, Natural Resource Conservation, Fundy National Park, New Brunswick, Canada.
- Suring, L.H., D.C. Crocker-Bedford, R.W. Flynn, C.L. Hale, G.C. Iverson, M.D. Kirchhoff, T.E. Schenck, L.C. Shea, and K. Titus. 1993. A proposed strategy for maintaining well-distributed, viable populations of wildlife associated with old-growth forests in southeast Alaska. USDA Forest Service, Alaska Region, Juneau, Alaska, USA.
- Swanson, B.J., and C.J. Kyle. 2007. Relative influence of temporal and geographic separation of source populations in a successful marten reintroduction. *Journal of Mammalogy* 88:1346–1348.
- Swanson, B.J., L.R. Peters, and C.J. Kyle. 2006. Demographic and genetic evaluation of an American marten reintroduction. *Journal of Mammalogy* 87:272–280.
- Swarbrick, M.M., and P.J. Havel. 2008. Physiological, pharmacological, and nutritional regulation of circulating adiponectin concentrations in humans. *Metabolic Syndrome and Related Disorders* 6:87–102.
- Taberlet, P., S. Griffin, B. Goossens<Au: spelled Goosens in Goosens et al. 1998; please resolve>, S. Questiau, V. Manceau, N. Escaravage, L.P. Waits, and J. Bouvet. 1996. Reliable genotyping of samples with very low DNA quantities using PCR. *Nucleic Acids Research* 26:3189–3194.
- Taberlet, P., L.P. Waits, and G. Luikart. 1999. Noninvasive genetic sampling: look before you leap. *Trends in Ecology & Evolution* 14:323–327.

- Talancy, N.W. 2005. Effects of habitat fragmentation and landscape context on medium-sized mammalian predators in northeastern national parks. Thesis, University of Rhode Island, Kingston, USA.
- Tallmon, D.A., D. Gregovich, R. Waples, C.S. Baker, J. Jackson, B. Taylor, F. Archer, F.W. Allendorf, and M.K. Schwartz. 2010. When are genetic methods useful for estimating contemporary abundance and detecting population trends? *Molecular Ecology Resources*. doi: 10.1111/j.1755-0998.2010.02831.x.
- Tallmon, D.A., G. Luikart, and R.S. Waples. 2004. The alluring simplicity and complex reality of genetic rescue. *Trends in Ecology & Evolution* 16:330–342.
- Tatara, M. 1994. Ecology and conservation status of the Tsushmia marten. Pages 272–279 in Martens, sables, and fishers: biology and conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell editors. Cornell University Press, Ithaca, New York, USA.
- Tatsumi, N., S. Miwa, and S.M. Lewis. 2002. Specimen collection, storage, and transmission to the laboratory for hematological tests. *International Journal of Hematology* 75:261–268.
- Taylor, M.E., and N. Abrey. 1982. Marten, *Martes americana*, movements and habitat use in Algonquin Provincial Park, Ontario. *Canadian Field-Naturalist* 96:439–447.
- Taylor, S.L., and S.W. Buskirk. 1994. Forest microenvironments and resting energetics of the American marten *Martes americana*. *Ecography* 17:249–256.
- Taylor, S.L., and S.W. Buskirk. 1996. Dynamics of subnivean temperature and wind speed in subalpine forests of the Rocky Mountains. *Journal of Thermal Biology* 21:91–99.
- Tedford, R.H., M.F. Skinner, R.W. Fields, J.M. Rensberger, D.P. Whistler, T. Galusha, B.E. Taylor, J.R. Macdonald, and S.D. Webb. 1987. Faunal succession and biochronology of

- the Arikareean through Hemphillian interval (late Oligocene through earliest Pliocene epochs) in North America. Pages 153–210 in *Cenozoic mammals of North America: geochronology and biostratigraphy*. M.O. Woodburne, editor. University of California Press, Berkeley, USA.
- Tenter, A.M., A.R. Heckerroth, and L.M. Weiss. 2000. *Toxoplasma gondii*: from animals to humans. *International Journal for Parasitology* 30:1217–1258.
- Theobald, D.M. 2006. Exploring the functional connectivity of landscapes using landscape networks. Pages 416–443 in *Connectivity conservation: maintaining connections for nature*. K.R. Crooks and M.A. Sanjayan, editors. Cambridge University Press, UK.
- Thomas, J.W., L.F. Ruggiero, R.W. Mannan, J.W. Schen, and R.A. Lancia. 1988. Management and conservation of old-growth forests in the United States. *Wildlife Society Bulletin* 16:252–262.
- Thomasma, L.E., T.D. Drummer, and R.O. Peterson. 1991. Testing the habitat suitability index model for the fisher. *Wildlife Society Bulletin* 19:291–297.
- Thomasma, L.E., T.D. Drummer, and R.O. Peterson. 1994. Modeling habitat selection by fishers. Pages 316–325 in *Martens, sables and fishers: biology and conservation*. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Thompson, C.M., and K. McGarigal. 2002. The influence of research scale on bald eagle habitat selection along the lower Hudson River, New York (USA). *Landscape Ecology* 17:569–586.

- Thompson, C., K. Purcell, J. Garner, and R. Green. 2010. Kings River Fisher Project: progress report 2007–2009. Unpublished report to the USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA.
- Thompson, C.M., W.J. Zielinski, and K.L. Purcell. **In press**.<Au: can this be updated now?> The use of landscape trajectory analysis to evaluate management risks: a case study of fisher in California. *Journal of Wildlife Management*.
- Thompson, I.D. 1994. Marten populations in uncut and logged boreal forests in Ontario. *Journal of Wildlife Management* 58:272–280.
- Thompson, I.D., J.A. Baker, C. Jastrebski, J. Dacosta, J. Fryxell, and D. Corbett. 2008. Effects of post-harvest silviculture on use of boreal forest stands by amphibians and marten in Ontario. *Forestry Chronicle* 84:741–747.
- Thompson, I.D., and P.W. Colgan. 1987. Numerical responses of marten to a food shortage in northcentral Ontario. *Journal of Wildlife Management* 51:824–835.
- Thompson, I.D., and P.W. Colgan. 1994. Marten activity in uncut and logged boreal forests in Ontario. *Journal of Wildlife Management* 58:280–288.
- Thompson, I.D., and W.J. Curran. 1995. Habitat capability of second-growth balsam fir forests for marten in Newfoundland. *Canadian Journal of Zoology* 73:2059–2064.
- Thompson, I.D., I.J. Davidson, S. O’Donnell, and F. Brazeau. 1989. Use of track transects to measure the relative occurrence of some boreal mammals in uncut forest and regeneration stands. *Canadian Journal of Zoology* 67:1816–1823.
- Thompson, I.D., and A.S. Harestad, 1994. Effects of logging on American martens, and models for habitat management. Pages 355–367 *in* Martens, sables, and fishers: biology and

- conservation. S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell, editors. Cornell University Press, Ithaca, New York, USA.
- Thompson, J., L. Diller, R. Golightly, and R. Klug. 2007. Fisher (*Martes pennanti*) use of a managed forest in coastal northwest California. Pages 245–246 in Proceedings of the Redwood Region forest science symposium: what does the future hold? R.B. Standiford, G.A. Giusti, Y. Valachovic, W.J. Zielinski, and M.J. Furniss, editors. USDA Forest Service, General Technical Report PSW-GTR-194.
- Thompson, W.D. 1991. Could marten become the spotted owl of Canada? *Forestry Chronicle* 67:136–140.
- Thompson, W.K. 1949. A study of martens in Montana. Pages 181–188 in Proceedings of the 29th Annual Conference of the Western Association of State Game and Fish Commissioners, Seattle, Washington, USA.
- Thompson, Z. 1842. History of Vermont, natural, civil and statistical. Part I. Privately printed, Burlington, Vermont, USA.
- Thorne, E.T., and E.S. Williams. 1988. Disease and endangered species: the black-footed ferret as a recent example. *Conservation Biology* 2:66–74.
- Timofeev, V.V., and V.N. Nadeev. 1955. The sable. Zagotizdat Publishing House, Moscow, USSR. (in Russian)
- Timofeev, V.V., and M.P. Pavlov. 1973. The sable. Pages 51–105 in Acclimatization of game mammals in the Soviet Union 1. I.D. Kiris, editor, Volgo-Vyatskoe Publishing House, Kirov, USSR. (in Russian)
- Tizard, I.R., J.B. Billett, and R.O. Ramsden. 1976. The prevalence of antibodies against *Toxoplasma gondii* in some Ontario mammals. *Journal of Wildlife Diseases* 12:322–325.

- Toma, S., and L. Lafleur. 1974. Survey on the incidence of *Yersinia enterocolitica* infection in Canada. *Applied Environmental Microbiology* 28:469–473.
- Torchin, M.E., K.D. Lafferty, A.P. Dobson, V.J. Mackenzie, and A.N. Kuris. 2003. Introduced species and their missing parasites. *Nature* 412:628–629.
- Tóth, M. 2008. A new non-invasive method for detecting mammals from birds' nests. *Journal of Wildlife Management* 72:1237–1240.
- Tóth, M., A. Bárány, and R. Kis. 2009. An evaluation of stone marten (*Martes foina*) records in the city of Budapest, Hungary. *Acta Zoologica Academiae Scientiarum Hungaricae* 55:199–209.
- Trapping Today. 2009. NAFA promises to rebuild wild fur market.
<http://trappingtoday.com/index.php/2009/03/03/nafa-promises-to-rebuild-wild-fur-market/> (accessed 21 March 2011).
- Trouessart, D.E. 1893. Mammiferes. Extrait de L'Annuaire Geologique Universel, Tome X.
- Truex, R.L., and W.J. Zielinski. 2005. Short-term effects of fire and fire surrogate treatments on fisher habitat in the Sierra Nevada. Unpublished final report to Joint Fire Science Program Project JFSP 01C-3-3-02. USDA Forest Service, Sequoia National Forest, Porterville, California, and USDA Forest Service, Pacific Southwest Research Station, Arcata, California, USA.
- Truex, R.L., W.J. Zielinski, R.T. Golightly, R.H. Barrett, and S.M. Wisely. 1998. A meta-analysis of regional variation in fisher morphology, demography, and habitat ecology in California. Unpublished draft report to California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Section, Sacramento, USA.

- Tschöp, M., D.L. Smiley, and M.L. Heiman. 2000. Ghrelin induces adiposity in rodents. *Nature* 407:908–913.
- Tully, S.M. 2006. Habitat selection of fishers (*Martes pennanti*) in an untrapped refugium: Algonquin Provincial Park. Thesis, Trent University, Peterborough, Ontario, Canada.
- Turner, M.G. 1989. Landscape ecology: the effect of pattern on process. *Annual Review of Ecology and Systematics* 20:171–197.
- Turton, W. 1806. A general system of nature, through the three grand kingdoms of animals, vegetables and minerals. Lackington and Allen, London, England.
- Twining, H., and A. Hensley. 1947. The status of pine martens in California. *California Fish and Game* 33:133–137.
- Urban, D.L. 1987. Landscape ecology. *Bioscience* 37:119–127.
- U.S. Department of Agriculture. 2004. Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement. USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA.
- U.S. Department of Agriculture. 2008. Land and resource management plan, Tongass National Forest. R10-MB-603b. USDA Forest Service, Tongass National Forest, Juneau, Alaska, USA.
- U.S. Department of Agriculture. 2010. Sierra Nevada Forest Plan amendment draft supplemental environmental impact statement. R5-MB-213. USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA. Available at www.fs.fed.us/r5/snfpa/
- U.S. Departments of Agriculture and Interior. 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl and the standards and guidelines for management of habitat for

- late-successional and old-growth related species within the range of the northern spotted owl. USDA Forest Service and USDI Bureau of Land Management, Portland, Oregon, USA.
- U.S. Departments of Agriculture and Interior. 2000. Interior Columbia Basin final environmental impact statement proposed decision. Interior Columbia Basin Ecosystem Management Project. USDA Forest Service and USDI Bureau of Land Management, Washington, D.C., USA.
- U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan: a species plan and ecosystem approach. U.S. Fish and Wildlife Service, Region IV, Atlanta, Georgia, USA.
- U.S. Fish and Wildlife Service. 2004. Notice of 12-month finding for a petition to list the West Coast Distinct Population Segment of the fisher (*Martes pennanti*). Federal Register 69:18770–18792.
- U.S. Fish and Wildlife Service. 2006. Species assessment and listing priority assignment form: fisher, West Coast Distinct Population Segment. U.S. Fish and Wildlife Service, Portland, Oregon, USA.
- U.S. Fish and Wildlife Service. 2010a. 90-day finding on a petition to list a distinct population segment of the fisher in its United States northern Rocky Mountain range as endangered or threatened with critical habitat. Federal Register 75:19925–19935.
- U.S. Fish and Wildlife Service. 2010b. Draft revised Recovery Plan for the northern spotted owl (*Strix occidentalis caurina*). Portland, Oregon, USA.
- U.S. Geological Survey. 1997. Forum on wildlife telemetry: innovations, evaluations, and research needs. Northern Prairie Wildlife Research Center Online, U.S. Geological

- Survey and The Wildlife Society, Jamestown, North Dakota, USA.
www.npwrc.usgs.gov/resource/wildlife/telemetry/index.htm (version 25 June 1998).
- Vadillo, J.M., J. Reija, and C. Vilà. 1997. Distribución y selección de hábitat de la garduña (*Martes foina*, Erxleben, 1777) en Vizcaya y Sierra Salvada (Burgos). *Doñana Acta Vertebrata* 24:39–49.
- Våge, D.I., E.B. Stavdal, J. Beheim, and H. Klungland. 2003. Why certain silver fox genotypes develop red hairs in their coat. *Scientifur* 27:79–83.
- Valentsev, A.S. 1996. Helminth invasion of sable. *Martes Working Group Newsletter* 4:22–24.
- Van der Lans, H.E., J. Tonckens, C.E. van der Ziel, and J.L. Mulder. 2006. Kansen voor de boomarter in Noord-Brabant (Opportunity for the pine marten in Noord-Brabant). Ecoplan-Natuurontwikkeling & Mulder Natuurlijk, De Bilt, Netherlands. (in Dutch)
- van Diggelen, F, 2010. Expert advice: Are we there yet? The state of the consumer industry. GPS World, March 1, 2010.
- Van Horne, B. 1983. Density as a misleading indicator of habitat quality. *Journal of Wildlife Management* 47:893-901.
- Van Moll, P., S. Alldinger, W. Baumgärtner, and M. Adami. 1995. Distemper in wild carnivores: an epidemiological, histological and immunocytochemical study. *Veterinary Microbiology* 44:193–199.
- Van Vuren, D. 1989. Effects of intraperitoneal transmitter implants on yellow-bellied marmots. *Journal of Wildlife Management* 53:320–323.
- van Wagtenonk, J.W., and J.A. Fites-Kaufman. 2006. Sierra Nevada bioregion. Pages 264–294 *in* Fire in California's ecosystems. N.G. Sugihara, J.W. van Wagtenonk, K.E. Shaffer,

- J.A. Fites-Kaufman, and A.E. Thode, editors. University of California Press, Berkeley, USA.
- Van Why, K.R., and W.M. Giuliano. 2001. Fall food habits and reproductive condition of fishers, *Martes pennanti*, in Vermont. *Canadian Field-Naturalist* 115:52–56.
- van Zyll de Jong, C. G. 1969. The restoration of marten in Manitoba, an evaluation. Manitoba Wildlife Branch, Biological Report, Winnipeg, Canada.
- Vaughan, T.A., J.M. Ryan, and N.J. Czaplewski. 2000. *Mammalogy*. Fourth edition. Thomson Learning, Stamford, USA.
- Velander, K.A. 1983. Pine marten survey of Scotland, England and Wales 1980–1982. The Vincent Wildlife Trust, London, UK.
- Venables, W.N., and D.M. Smith. 2008. An introduction to R: a programming environment for data analysis and graphics. Version 2. R Development Core Team. Available at <http://cran.r-project.org/>.
- Videla, L.A., R. Rodrigo, J. Araya, and J. Poniachik. 2004. Oxidative stress and depletion of hepatic long-chain polyunsaturated fatty acids may contribute to nonalcoholic fatty liver disease. *Free Radical Biology & Medicine* 37:1499–1507.
- Vignal, A., D. Milan, M. SanCristobal, and A. Eggen. 2002. A review on SNP and other types of molecular markers and their use in animal genetics. *Genetics Selection Evolution* 34:275–305.
- Vinkey, R.S. 2003. An evaluation of fisher (*Martes pennanti*) introductions in Montana. Thesis, University of Montana, Missoula, USA.

- Vinkey, R.S., M.K. Schwartz, K.S. McKelvey, K.R. Foresman, K.L. Pilgrim, B.J. Giddings, and E.C. Lofroth. 2006. When reintroductions are augmentations: the genetic legacy of fishers (*Martes pennanti*) in Montana. *Journal of Mammalogy* 87:265–271.
- Virgós, E. 2001. Relative value of riparian woodlands in landscapes with different forest cover for medium-sized Iberian carnivores. *Biodiversity and Conservation* 10:1039–1049.
- Virgós, E., S. Cabezas-Díaz, J.G. Mangas, and J. Lozano. 2010. Spatial distribution models in a frugivorous carnivore, the stone marten (*Martes foina*): is the fleshy-fruits availability a useful predictor? *Animal Biology* 60:423–436.
- Virgós, E., and J.G. Casanovas. 1998. Distribution patterns of the stone marten (*Martes foina*) in Mediterranean mountains of central Spain. *Zeitschrift für Säugetierkunde* 63:193–199.
- Virgós, E., and F.J. Garcia. 2002. Patch occupancy by stone martens *Martes foina* in fragmented landscapes of central Spain: the role of fragment size, isolation and habitat structure. *Acta Oecologia* 23:231–237.
- Virgós, E., M.R. Recio, and Y. Cortés. 2000. Stone marten (*Martes foina*) use of different landscape types in the mountains of central Spain. *Zeitschrift für Säugetierkunde* 65:375–379.
- Vladimirova, E.J., and J.P. Mozgovoy. 2010. Winter ecology of the pine marten (*Martes martes* L.) in the Volga Floodplain opposite Samara. *Russian Journal of Ecology* 41:333–339.
- Voorhies, M.R. 1990. Vertebrate biostratigraphy of the Ogallala group in Nebraska. Pages 115–151 in *Geologic framework and regional hydrology: upper Cenozoic Blackwater Draw and Ogallala Formation, Great Plains*. T.C. Gustavson, editor. University of Texas, Austin, USA.

- Wabakken, P. 1985. Vinternæring, habitatbruk og jaktadferd hos mår (*Martes martes*) i sørøstnorsk barskog. Thesis, University of Oslo, Norway. (In Norwegian).
- Waechter, A. 1975. Écologie de la fouine en Alsace. *Revue d'Ecologie (Terre et Vie)* 29:399–457.
- Wagener, W.W., and R.W. Davidson. 1954. Heart rots in living trees. *Botanical Review* 20:61–134.
- Waits, L.P., and D. Paetkau. 2005. Noninvasive sampling tools for wildlife biologists: a review of applications and recommendations for accurate data collection. *Journal of Wildlife Management* 64:1419–1433.
- Walker, F.A. 1872. Ninth census: Volume I, the statistics of the population of the United States, embracing the tables of race, nationality, sex, selected ages, and occupations. U.S. Department of the Interior, Government Printing Office, Washington, D.C., USA.
- Wallace, K., and R. Henry. 1985. Return of a Catskill native. *The Conservationist* 40(3):16–19.
- Waltari, E., E.P. Hoberg, E.P. Lessa, and J.A. Cook. 2007. Eastward Ho: phylogeographical perspectives on colonization of hosts and parasites across the Beringian nexus. *Journal of Biogeography* 34:561–574.
- Walton, L.R., H.D. Cluff, P.C. Paquet, and M.A. Ramsay. 2001. Movement patterns of barren-ground wolves in the central Canadian Arctic. *Journal of Mammalogy* 82:867–876.
- Wan-bo, H. 1979. On the age of the cave faunas of south China. *Vertebrata Palasiatica* 17:327–343.
- Wang, J., M. Lin, A. Crenshaw, A. Hutchinson, B. Hicks, M. Yeager, S. Berndt, W.-Y. Huang, R.B. Hayes, S.J. Chanock, R.C. Jones, and R. Ramakrishnan. 2009. High-throughput

- single nucleotide polymorphism genotyping using nanofluidic dynamic arrays. *BMC Genomics* 10:561–574.
- Warheit, K.I. 2004. Fisher (*Martes pennanti*) control region sequences from Alberta, and re-analysis of sequences from other regions in North America: recommendations for the reintroduction of fishers into Washington. Draft report, Washington Department of Fish and Wildlife, Olympia, USA.
- Wasser, S.K., B. Davenport, E.R. Ramage, K.E. Hunt, M. Parker, C. Clarke, and G. Stenhouse. 2004. Scat detection dogs in wildlife research and management: application to grizzly and black bears in the Yellowhead ecosystem, Alberta, Canada. *Canadian Journal of Zoology* 82:475–492.
- Wasser, S.K., H. Smith, L. Madden, N. Marks, and C. Vynne. 2009. Scent-matching dogs determine number of unique individuals from scat. *Journal of Wildlife Management* 73:1233–1240.
- Wasserman, T.N. 2008. Habitat relationships and landscape genetics of *Martes americana* in northern Idaho. Thesis, Western Washington University, Bellingham, USA.
- Wasserman, T.N., S.A. Cushman, M.K. Schwartz, and D.O. Wallin. 2010. Spatial scaling and multi-model inference in landscape genetics: *Martes americana* in northern Idaho. *Landscape Ecology* 25:1601–1612.
- Wayne, R.K., and D.M. Brown. 2001. Hybridization and conservation of carnivores. Pages 145–162 in *Carnivore conservation*. J.L. Gittleman, S.M. Funk, D.W. Macdonald, and R.K. Wayne, editors. Cambridge University Press, London, UK.
- Webster, J.A. 2001. A review of the historical evidence of the habitat of the pine marten in Cumbria. *Mammal Review* 31:17–31.

- Webster, J.P. 2007. The effect of *Toxoplasma gondii* on animal behavior: playing cat and mouse. *Schizophrenia Bulletin* 1-5.
- Webster, J.P., C.F. Brunton, and D.W. Macdonald. 1994. Effect of *Toxoplasma gondii* upon neophobic behaviour in wild brown rats, *Rattus norvegicus*. *Parasitology* 109:37–43.
- Weckwerth, R.P., and V.D. Hawley. 1962. Marten food habits and population fluctuations in Montana. *Journal of Wildlife Management* 26:55–74.
- Weckwerth, R.P., and P.L. Wright. 1968. Results of transplanting fishers in Montana. *Journal of Wildlife Management* 32:977–980.
- Weir, R.D. 1995. Diet, spatial organization, and habitat relationships of fishers in south-central British Columbia. Thesis, Simon Fraser University, Burnaby, British Columbia, Canada.
- Weir, R.D. 1999. Inventory of fishers in the sub-boreal forests of north-central British Columbia Year III (1998/99): radiotelemetry monitoring. Peace/Williston Fish and Wildlife Compensation Program, Report No. 206.
- Weir, R.D. 2009. Fisher ecology in the Kiskatinaw Plateau Ecosystem. Unpublished report to the British Columbia Ministry of Environment and Louisiana-Pacific Canada Ltd., Vancouver, British Columbia, Canada.
- Weir, R.D., I.T. Adams, G. Mowat, and A.J. Fontana. 2003. East Kootenay fisher assessment. Unpublished report to British Columbia Ministry of Water, Land, and Air Protection, Cranbrook, British Columbia, Canada.
- Weir, R.D., and F.B. Corbould. 2006. Density of fishers in the sub-boreal spruce biogeoclimatic zone of British Columbia. *Northwestern Naturalist* 87:118–127.
- Weir, R.D., and F.B. Corbould. 2007. Factors affecting diurnal activity of fishers in north-central British Columbia. *Journal of Mammalogy* 88:1508–1514.

- Weir, R.D., and F.B. Corbould. 2008. Ecology of fishers in the sub-boreal forests of north-central British Columbia. Peace/Williston Fish and Wildlife Compensation Program, Report No. 315, Prince George, British Columbia, Canada.
- Weir, R.D., and F.B. Corbould. 2010. Factors affecting landscape occupancy by fishers in north-central British Columbia. *Journal of Wildlife Management* 74:405–410.
- Weir, R., F. Corbould, and A. Harestad. 2004. Effect of ambient temperature on the selection of rest structures by fishers. Pages 187–197 in *Martens and fishers (Martes) in human-altered environments: an international perspective*. D.J. Harrison, A.K. Fuller and G. Proulx, editors. Springer Science+Business Media, New York, USA.
- Weir, R.D., and A.S. Harestad. 1997. Landscape-level selectivity by fishers in south-central British Columbia. Pages 252–264 in *Martes: taxonomy, ecology, techniques, and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Weir, R.D., and A.S. Harestad. 2003. Scale-dependent habitat selectivity by fishers in south-central British Columbia. *Journal of Wildlife Management* 67:73–82.
- Weir, R.D., A.S. Harestad, and R.C. Wright. 2005. Winter diet of fishers in British Columbia. *Northwestern Naturalist* 86:12–19.
- Wengert, G.M., M.W. Gabriel, D.L. Clifford. 2011. Investigating cause-specific mortality and diseases in carnivores. In *Carnivore ecology and conservation: a handbook of techniques*. L. Boitani and R.A. Powell, editors. Oxford University Press, London, UK.
- Werdelin, L. 1996. Carnivores, exclusive of Hyaenidae, from the later Miocene of Europe and western Asia. Pages 271–289 in *The evolution of western Eurasian Neogene mammal faunas*. R.L. Bernor, V. Fahlbusch, and H-W. Mittmann, editors. Columbia University

- Press, New York, USA.
- Westerling, A.L., B.P. Bryant, H.K. Preisler, H.G. Hidalgo, and T. Das. 2009. Climate change, growth and California wildfire. CEC-500-2009-046-F. California Energy Commission, Sacramento, USA.
- Westerling, A.L., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam. 2006. Warming and earlier spring increase western U.S. forest wildfire activity. *Science* 313:940–943.
- Whitaker, J.O., Jr., and W.J. Hamilton, Jr. 1998. *Mammals of the eastern United States*. Cornell University Press, Ithaca, New York, USA.
- White, G.C., and R.A. Garrott. 1990. *Analysis of wildlife and radio-tracking data*. Academic Press, New York, USA.
- Wickström, L., V. Haukisalmi, S. Varis, J. Hantula, V.B. Federov, and H. Henttonen. 2003. Phylogeography of circumpolar *Paranoplocephala arctica* species complex (Cestoda; Anoplocephalidae) parasitizing collared lemmings. *Molecular Ecology* 12:3359–3371.
- Wickstrom, M., and C. Eason. 1999. Literature search for mustelid-specific toxicants. *Science for Conservation* 127:57–65.
- Wiebe, K.L. 2001. Microclimate of tree cavity nests: is it important for reproductive success in northern flickers? *The Auk* 118:412–421.
- Wiens, J.A. 1976. Population responses to patchy environments. *Annual Review of Ecology and Systematics* 7:81–120.
- Wiens, J.A., N.C. Stenseth, B. Van Horne, and R.A. Ims. 1993. Ecological mechanisms and landscape ecology. *Oikos* 66:369–380.

- Wilbert, C.J., S.W. Buskirk, and K.G. Gerow. 2000. Effects of weather and snow on habitat selection by American martens (*Martes americana*). *Canadian Journal of Zoology* 78:1691–1696.
- Williams, B.K., J.D. Nichols, and M.J. Conroy. 2002. *Analysis and management of animal populations*. Academic Press, San Diego, California, USA.
- Williams, B.W., D.R. Etter, D.W. Linden, K.F. Millenbah, S.R. Winterstein, and K.T. Scribner. 2009. Noninvasive hair sampling and genetic tagging of co-distributed fishers and American martens. *Journal of Wildlife Management* 73:26–34.
- Williams, B.W., J.H. Gilbert, and P.A. Zollner. 2007. Historical perspective on the reintroduction of the fisher and American marten in Wisconsin and Michigan. USDA Forest Service, General Technical Report GTR-NRS-5.
- Williams, B.W., and K.T. Scribner. 2007. Demographic and genetic evaluation of an American marten reintroduction: a comment on Swanson et al. *Journal of Mammalogy* 88:1342–1345.
- Williams, B.W., and K.T. Scribner. 2010. Effects of multiple founder populations on spatial genetic structure of reintroduced American martens. *Molecular Ecology* 19:227–240.
- Williams, E.S. 2001. Canine distemper. Pages 50–59 *in* *Infectious diseases of wild mammals*. E.S. Williams and I.K. Barker, editors. Iowa State University Press, Ames, USA.
- Williams, E., and I. Barker. 2001. *Infectious diseases of wild mammals*. Third edition. Iowa State University Press, Ames, USA.
- Williams, E.S., K. Mills, D.R. Kwiatkowski, E.T. Thorne, and A. Boerger-Fields. 1994. Plague in a black-footed ferret (*Mustela nigripes*). *Journal of Wildlife Disease* 30:581–585.

- Williams, E.S., and E.T. Thorne. 1996. Infectious and parasitic diseases of captive carnivores, with special emphasis on the black-footed ferret (*Mustela nigripes*). *Review of Science and Technology* 15:91–114.
- Williams, R.M. 1962a. The fisher returns to Idaho. *Idaho Wildlife Review* 15:8–9.
- Williams, R.M. 1962b. Trapping and transplant project, fisher transplant segment. Project W 75-D-9, completion report. Idaho Department of Fish and Game, Boise, USA.
- Williams, R.M. 1963. Trapping and transplanting. Part I—Fisher. Federal Aid in Wildlife Retoration, Final Segment Report, Project W 75-D-10. Idaho Department of Fish and Game, Boise, USA.
- Williams, R.N., O.E. Rhodes, Jr., and T.L. Serfass. 2000. Assessment of genetic variance among source and reintroduced fisher populations. *Journal of Mammalogy* 81:895–907.
- Wilson, C., and C. Tisdell. 2005. What roles does knowledge of wildlife play in providing support for species conservation? *Journal of Social Sciences* 1:47–51.
- Wilson, D.E., and D.M. Reeder. 2005. *Mammal species of the world: a taxonomic and geographic reference*. Third edition. Johns Hopkins University Press, Baltimore, Maryland, USA.
- Wilson, R.L. 1968. Systematics and faunal analysis of a Lower Pliocene vertebrate assemblage. *University of Michigan Contributions from the Museum of Paleontology* 22:75–126.
- Wimsatt, J., D. Biggins, E. Williams, and V. Becerra. 2006. The quest for a safe and effective canine distemper virus vaccine for black-footed ferrets. Pages 248–263 *in* Recovery of the black-footed ferret: progress and continuing challenges. J.E. Roelle, B.J. Miller, J. L. Godbey, and D. E. Biggins, editors. U.S. Geological Survey, Fort Collins, Colorado, USA.

- Wisdom, M.J., R.S. Holthausen, B.C. Wales, C.D. Hargis, V.A. Saab, D.C. Lee, W.J. Hann, T.D. Rich, M.M. Rowland, W.J. Murphy, and M.R. Eames. 2000. Source habitats for terrestrial vertebrates of focus in the Interior Columbia Basin: broad-scale trends and management implications. 3 volumes. USDA Forest Service, General Technical Report PNW-GTR-485.
- Wisely, S.M., S.W. Buskirk, G.A. Russell, K.B. Aubry, and W.J. Zielinski. 2004. Genetic diversity and structure of the fisher (*Martes pennanti*) in a peninsular and peripheral metapopulation. *Journal of Mammalogy* 85:640–648.
- Wobeser, G.A. 2006. *Essentials of disease in wild animals*. Blackwell Publishing, Ames, Iowa, USA.
- Wobeser, G.A. 2007. *Disease in wild animals: investigation and management*. Springer-Verlag, Berlin, Germany.
- Wolsan, M. 1988. Morphological variations of the first upper molar in the Genus *Martes* (Carnivora, Mustelidae). Pages 241–254 in *Teeth revisited: proceedings of the VIIth international symposium on dental morphology*. D.E. Russell, J-P. Santoro, and D. Sigogneau-Russell, editors. Mémoires du Musée National d'Histoire Naturelle, Paris, (serie C) 53.
- Wolsan, M. 1989. Dental polymorphism in the genus *Martes* (Carnivora: Mustelidae) and its evolutionary significance. *Acta Theriologica* 34:545-593.
- Wolsan, M. 1993a. Evolution des carnivores quaternaires en Europe centrale dans leur contexte stratigraphique et paleoclimatique. *L'Anthropologie*, (Paris) Tome 97, nos 2/3:203–222.
- Wolsan, M. 1993b. Phylogeny and classification of early European mustelida (Mammalia: Carnivora). *Acta Theriologica* 38:345–384.

- Wolsan, M. 1999. Oldest mephitine cranium and its implications for the origin of skunks. *Acta Palaeontologica Polonica* 44:223–229.
- Wolsan, M., A.L. Ruprecht, and T. Buchalczyk. 1985. Variation and asymmetry in the dentition of the pine and stone martens (*Martes martes* and *M. foina*) from Poland. *Acta Theriologica* 30:79–114.
- Wood, D.J.A., J.L. Koprowski, and P.W.W. Lurz. 2007. Tree squirrel introduction: A theoretical approach with population viability analysis. *Journal of Mammalogy* 88:1271–1279.
- Wood, J. 1977. The fisher is:..... *National Wildlife* 15(3):18–21.
- Wood, J.E. 1959. Relative estimates of fox population levels. *Journal of Wildlife Management* 23:53–63.
- Woodford, J.E. 2009a. Stocking and monitoring American marten in Wisconsin. Final Project Report, Wisconsin Department of Natural Resources, Madison, USA.
- Woodford, J.E. 2009b. Winter track surveys for American marten in northern Wisconsin, 2008–09. Wisconsin Natural Resources, Madison, USA.
<http://dnr.wi.gov/org/land/wildlife/harvest/reports/09martensurv.pdf> (accessed 2 April 2010).
- Woodroffe, R. 1999. Managing disease threats to wild mammals. *Animal Conservation* 2:185–193.
- Woodroffe, R. 2001. Assessing the risks of intervention: immobilization, radio-collaring and vaccination of African wild dogs. *Oryx* 35:234–244.
- Worthen, G.L., and D.L. Kilgore, Jr. 1981. Metabolic rate of pine marten in relation to air temperature. *Journal of Mammalogy* 62:624–628.

- Wozencraft, W.C. 2005. Order Carnivora. Pages 532–628 in *Mammal species of the world*.
Third edition. D.E. Wilson and D.M. Reeder, editors. Johns Hopkins University Press,
Baltimore, Maryland, USA.
- Wright, P.L. 1942. Delayed implantation in the long-tailed weasel (*Mustela frenata*), the short-tailed weasel (*Mustela cicognani*), and the marten (*Martes americana*). *Anatomical Research* 83:341–349.
- Wright, P.L. 1953. Intergradation between *Martes americana* and *Martes caurina* in western Montana. *Journal of Mammalogy* 34:74–86.
- Wynne, K.M., and J.A. Sherburne. 1984. Summer home range used by adult marten in northwestern Maine. *Canadian Journal of Zoology* 62:941–943.
- Yaeger, J.S. 2005. Habitat at fisher resting sites in the Klamath Province of Northern California. Thesis, Humboldt State University, Arcata, California, USA.
- Yanai, T., A. Tomita, T. Masegi, K. Ishikawa, T. Iwasaki, K. Yamazoe, and K. Ueda. 1995. Histopathologic features of naturally occurring hepatozoonosis in wild martens (*Martes melampus*) in Japan. *Journal of Wildlife Diseases* 31:233–237.
- Yeager, L.E. 1950. Implications of some harvest and habitat factors on pine marten management. *Transactions of the North American Wildlife Conference* 15:319–334.
- Yonezawa, T., M. Nikaido, N. Kohno, Y. Fukumoto, N. Okada, and M. Hasegawa. 2007. Molecular phylogenetic study on the origin and evolution of Mustelidae. *Gene* 396:1–12.
- York, E.C. 1996. Fisher population dynamics in north-central Massachusetts. Thesis, University of Massachusetts, Amherst, USA.
- Youngman, P.M., and F.W. Schueler. 1991. *Martes nobilis* is a synonym of *Martes americana*, not an extinct Pleistocene-Holocene species. *Journal of Mammalogy* 72:567–577.

- Yu, L., Q.W. Li, O.A. Ryder, and Y.P. Zhang. 2004. Phylogenetic relationships within mammalian order Carnivora indicated by sequences of two nuclear DNA genes. *Molecular Phylogenetics and Evolution* 33:694–705.
- Zabala, J., I. Zuberogoitia, and J.A. Martinez-Climent. 2009. Testing for niche segregation between two abundant carnivores using presence-only data. *Folia Zoologica* 58:385–395.
- Zachos, J., M. Pagani, L. Sloan, E. Thomas, and K. Billups. 2001. Trends, rhythms, and aberrations in global climate 65 Mya to present. *Science* 292:686–693.
- Zajac, A.M., and G.A. Conboy. 2006. *Veterinary clinical parasitology*. Seventh edition. Blackwell Publishing, Ames, Iowa, USA.
- Zalewski, A. 1997a. Factors affecting selection of resting site type by pine marten in primeval deciduous forests (Bialowieza National Park, Poland). *Acta Theriologica* 42:271–288.
- Zalewski, A. 1997b. Patterns of resting site use by pine marten, *Martes martes*, in Bialowieza National Park (Poland). *Acta Theriologica* 42:153–168.
- Zalewski, A. 1999. Identifying sex and individuals of pine marten using snow track measurements. *Wildlife Society Bulletin* 27:28–31.
- Zalewski, A. 2000. Factors affecting the duration of activity by pine martens (*Martes martes*) in the Białowieża National Park, Poland. *Journal of Zoology* 251:439–447.
- Zalewski, A. 2007. Does size dimorphism reduce competition between sexes? The diet of male and female pine martens at local and wider geographical scales. *Acta Theriologica* 52:237.
- Zalewski, A., and W. Jędrzejewski. 2006. Spatial organisation and dynamics of the pine marten *Martes martes* population in Bialowieza Forest (E. Poland) compared with other European woodlands. *Ecography* 29:31–43.

- Zalewski, A., W. Jędrzejewski, and B. Jędrzejewska. 1995. Pine marten home ranges, numbers and predation on vertebrates in a deciduous forest (Bialowieza National Park, Poland). *Annales Zoologici Fennici* 32:131–144.
- Zar, J.H. 1999. *Biostatistical analysis*. Fourth edition. Prentice Hall, Englewood Cliffs, New Jersey, USA.
- Zarlenga, D.S., B. Rosenthal, E. Pozio, G. La Rosa, and E.P. Hoberg. 2006. Post-Miocene expansion, colonization, and host switching drove speciation among extant nematodes of the archaic genus *Trichinella*. *Proceedings of the National Academy of Sciences, USA* 103:7354–7359.
- Zarnke, R.L., J.S. Whitman, R.W. Flynn, and J.M. Ver Hoef. 2004. Prevalence of *Soboliphyme baturini* in marten (*Martes americana*) populations from three regions of Alaska, 1990–1998. *Journal of Wildlife Diseases* 40:452–455.
- Zhang, Y., R. Proenca, M. Maffei, M. Barone, L. Leopold, and J.M. Friedman. 1994. Positional cloning of the mouse *obese* gene and its human homologue. *Nature* 372:425–432.
- Zielinski, G.A., and B.D. Keim. 2003. *New England weather, New England climate*. University Press of New England, Lebanon, New Hampshire, USA.
- Zielinski, W.J. 1984. Plague in pine martens and the fleas associated with its occurrence. *Great Basin Naturalist* 41:170–175.
- Zielinski, W.J. 1995. Track plates. Pages 67–89 *in* American marten, fisher, lynx, and wolverine: survey methods for their detection. W.J. Zielinski and T.E. Kucera, technical editors. USDA Forest Service, General Technical Report PSW-GTR-157.

- Zielinski, W.J., R.H. Barrett, and R.L. Truex. 1997a. Southern Sierra Nevada fisher and marten study: progress report IV. Unpublished report to the USDA Forest Service, Pacific Southwest Region, Vallejo, California, USA.
- Zielinski, W.J., C. Carroll, and J.R. Dunk. 2006a. Using landscape suitability models to reconcile conservation planning for two key forest predators. *Biological Conservation* 133:409–430.
- Zielinski, W.J., N.P. Duncan, E.C. Farmer, R.L. Truex, A.P. Clevenger, and R.H. Barrett. 1999. Diet of fishers (*Martes pennanti*) at the southernmost extent of their range. *Journal of Mammalogy* 80:961–971.
- Zielinski, W.J., J.R. Dunk, J.S. Yaeger, and D.W. LaPlante. 2010. Developing and testing a landscape-scale habitat suitability model for fisher (*Martes pennanti*) in forests of interior northern California. *Forest Ecology and Management* 260:1579–1591.
- Zielinski, W.J., and T.E. Kucera, technical editors. 1995. American marten, fisher, lynx, and wolverine: survey methods for their detection. USDA Forest Service, General Technical Report PSW-GTR-157.
- Zielinski, W.J., T.E. Kucera, and R.H. Barrett. 1995. Current distribution of the fisher, *Martes pennanti*, in California. *California Fish and Game* 81:104–112.
- Zielinski, W.J., and F.V. Schlexer. 2009. Inter-observer variation in identifying mammals from their tracks at enclosed track plate stations. *Northwest Science* 83:299–307.
- Zielinski, W.J., F.V. Schlexer, K.L. Pilgrim, and M.K. Schwartz. 2006b. The efficacy of wire and glue hair snares in identifying mesocarnivores. *Wildlife Society Bulletin* 34:1152–1161.
- Zielinski, W.J., W.D. Spencer, and R.H. Barrett. 1983. Relationship between food habits and

- activity patterns of pine martens. *Journal of Mammalogy* 64:387–396.
- Zielinski, W.J., and H.B. Stauffer. 1996. Monitoring *Martes* populations in California: survey design and power analysis. *Ecological Applications* 6:1254–1267.
- Zielinski, W.J., and R.L. Truex. 1995. Distinguishing tracks of marten and fisher at track-plate stations. *Journal of Wildlife Management* 59:571–579.
- Zielinski, W.J., R.L. Truex, J.R. Dunk, and T. Gaman. 2006c. Using forest inventory data to assess fisher resting habitat suitability in California. *Ecological Applications* 16:1010–1025.
- Zielinski, W.J., R.L. Truex, C.V. Ogan, and K. Busse. 1997b. Detection surveys for fishers and American martens in California, 1989–1994: summary and interpretations. Pages 372–392 in *Martes: taxonomy, ecology, techniques and management*. G. Proulx, H.N. Bryant, and P.M. Woodard, editors. Provincial Museum of Alberta, Edmonton, Canada.
- Zielinski, W.J., R.L. Truex, F.V. Schlexer, L.A. Campbell, and C. Carroll. 2005. Historical and contemporary distributions of carnivores in forests of the Sierra Nevada, California, USA. *Journal of Biogeography* 32:1385–1407.
- Zielinski, W.J., R.L. Truex, G.A. Schmidt, F.V. Schlexer, K.N. Schmidt, and R.H. Barrett. 2004a. Home range characteristics of fishers in California. *Journal of Mammalogy* 85:649–657.
- Zielinski, W.J., R.L. Truex, G.A. Schmidt, F.V. Schlexer, K.N. Schmidt, and R.H. Barrett. 2004b. Resting habitat selection by fishers in California. *Journal of Wildlife Management* 68:475–492.

Zschille, J., N. Stier, and M. Roth. 2008. Radio tagging American mink (*Mustela vison*)—experience with collar and intraperitoneal-implanted transmitters. *European Journal of Wildlife Research* 54:263–268.