

# Protected Areas Database - Aviation Policies & Procedures

---

Conservation Biology Institute  
July 15, 2010  
Kai Henifin & Allison Anderson

The purpose of the Protected Areas Database - Aviation (or PAD-Aviation) is to provide military and civil aviators with current, geo-referenced data that identifies areas sensitive or potentially sensitive to aircraft over-flight using a national standard. PAD-Aviation is a customized protected areas database derived from the PAD-US 1.1 (CBI Edition) that streamlines the geometry for rapid response with onboard navigation equipment and contains pertinent attributes unique for aviators, including easy-to-use recommended altitude or avoidance information for individual protected areas.

## Data Customization Procedures

The PAD-Aviation database was constructed in cooperation with the US Air Force, other military branches, defense contractors, and protected areas specialists.

### Avoidance Criteria & Regulation Standards

- The PAD-Aviation terminology crosswalk tables outline the Federal Aviation Administration (FAA) and Department of Defense (DOD) Service Branch avoidance criteria and regulations used in the protected areas data attribution (see Avoidance Criteria & Regulations for Noise Sensitive Areas.xls)
- The PAD-Aviation schema includes the following attribute fields:

Field Name	Field Type	Notes
AREA	Floating Decimal (Sq. Meters)	
PERIMETER	Floating Decimal (Meters)	
PAD_ID	Long Integer	CBI
AREANAME	Text	
DESIGNATE	Text	
AGENCY	Text	
SOURCE	Text	PAD Source
ACRES	Long Integer	
AVOIDVERT	Text	2000' AGL; 4000' MSL; Special Flight Rules Area
AVOIDHORZ	Text	2000'; 4000'; NM
REGSOURCE	Text	Source-Title Agency

### Data Processing

#### 1. Noise Sensitive Areas with Avoidance Criteria

The Protected Areas Database-Aviation (PAD-Aviation) is a subset of the more comprehensive PAD-US v1.1 (CBI Edition) which represents the full range of conservation designations.

Only a portion of these areas are cited in the FAA and DOD regulations as noise sensitive and have over-flight avoidance criteria. Therefore to customize PAD-Aviation for rapid response in onboard navigation systems, only the parcels with noise sensitive avoidance criteria were extracted from PAD-US v1.1 (CBI Edition) to produce PAD-Aviation.

The following designations were extracted from PAD-US v1.1 (CBI Edition) and aggregated together to create the PAD-Aviation dataset which represents only the designations identified as noise sensitive or potentially noise sensitive.

### **Federal Lands**

*USDA Forest Service* - National Monument, National Recreation Area, Recreation Area, Wild, Scenic & Recreation River, National Game Refuge, Brown Bear Core Area, Wilderness Area, Wilderness Study Area, National Historic Trail, National Natural or Historic Landmark, Research Natural Area, National Preserve

*Bureau of Land Management* - National Monument, National Recreation Area, Wild, Scenic & Recreation River, Wildlife Habitat Area, Wilderness Study Area, Wilderness Area, Area of Critical Environmental Concern, Research Natural Area

*National Park Service* - National Park, National Parkway, National Monument, National Seashore, National Lakeshore, National Recreation Area, National River & Wild & Scenic Riverway, Wilderness Study Area, Wilderness Area, National Historic Park, National Historic Site

*US Fish & Wildlife Service* - National Wildlife Refuge, Managed Hunting Area, Wildlife Management Area, Waterfowl Production Area, Wilderness Area, Wilderness Study Area

*National Oceanic and Atmospheric Association (NOAA)* - National Estuarine Marine Reserve

*Department of Defense* - Military Recreation Areas

*Bureau of Indian Affairs* - American Indian Reservations - Federally Recognized Tribal Entities (BIA)

### **Native American Lands**

Native American Reservation, Tribal Park, Tribal Primate Area, Alaska Native Regional Corporations

### **State Lands**

State Beach, State Recreation Area, Recreational Trail, State Wild & Scenic River, State Waterfowl Production Area, State Wildlife Management Area, State Range Area, State Parks, State Cultural/Historic Area

**Local Lands**

City Beach, County Beach, City Recreation Area, County Recreation Area, Regional Parks, City Parks, County Parks

2. Minimum Object Size

Objects less than 10 acres are not discernable to the typical low-altitude planning chart scales of 1:50,000 (TPC) and 1:250,000 (JOG). All parcels less than 10 acres were selected from PAD-Aviation and buffered to 10 circular acres to ensure visibility of avoidance areas for aviators.

3. Polygon Attribution

<b>PAD-US v1.1 (CBI Edition) Field Name</b>	<b>PAD-Aviation Field Name</b>
US_ID	PAD_ID
Primary Designation Name (p_des_nm)	AREANAME
Primary Designation Type (p_des_tp)	DESIGNATE
Owner Detailed Name (own_name_d)	AGENCY
GIS Source (gis_src)	SOURCE
	ACRES
	AVOIDVERT
	AVOIDHORZ
	REGSOURCE

The "AVOIDVERT", "AVOIDHORZ" and "REGSOURCE" fields were populated using the FAA AIM and FAA AC 91-36D avoidance criteria regulations. (see Avoidance Criteria & Regulations for Noise Sensitive Areas.xls)

4. Inholding Removal

Protected areas containing inholdings clutter the chart and degrade database performance. All inholdings have been removed from PAD-Aviation and each protected area is represented spatially with only its outermost boundary.

5. Database Formats

PAD-Aviation has been formatted and made available in the following formats:

- ESRI Shapefile
- ESRI Shapefile formatted for FlaconView (compatible with PFPS, JMPS and Xplan)
- Google Earth KML (compatible with Google products and Warfighter's Edge - WEge)