Interpreting Wildlife Habitat from Aerial Photos

Aerial photos are pictures of the ground taken from an elevated position like an aircraft, drone, or satellite. Aerial photos may be natural color, infrared or black and white. These photos can be used to evaluate potential habitat for wildlife, especially from a landscape scale perspective. Aerial photos are ideal for remote sensing. Remote sensing is the process of gathering data about objects or conditions on the ground using cameras or other sensing and recording devices carried aboard an aircraft or spacecraft.

Aerial photos are used extensively in wildlife management for projects such as:

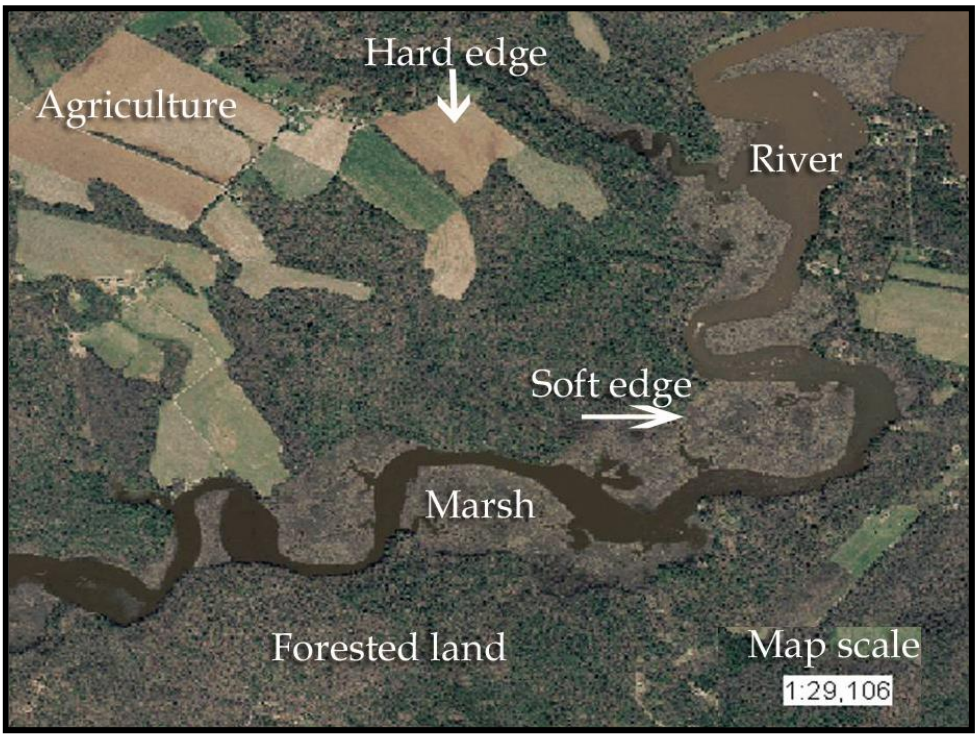
- Boundary mapping
- Field mapping
- Habitat inventory and assessment (including cover mapping)
- Mitigation and environmental impact assessments
- Population surveys

Using aerial photos provides several advantages over ground-based observations. For example, aerial photos offer improved vantage points, the capability to stop action and the ability to provide a permanent record. It is important to note that sometimes objects may be distorted on aerial photos, and it may be necessary to use ground truthing. Ground truthing is checking in the field to make sure the photo is being interpreted correctly.

When examining aerial photos, it is important to note *color* and *texture*. These two attributes are used to define features. In terms of texture, grass, cement, and water generally appear "smooth", while a forest canopy may appear "rough". *Patterns* are another element to look for in aerial photos. Generally, agricultural fields can show patterns of crops or orchards can have rows of trees. Size is another important element when examining aerial photos. Size can be determined by the map scale and can aid in distinguishing features such as ponds versus lakes.

The *scale* used for the photo is also essential. Mapping scales are expressed as ratios. For example, a scale of 1:1800 means 1 unit on the photo equals 1800 units on the ground. The larger the second number is in the ratio, the smaller the scale is on the map. Large scales help show greater detail, but sometimes finer features may be missed with larger scales.
Pictured below is an example of a natural color aerial photo from Charles County with several defined features. Agricultural fields, forested land, and a river can be seen. In

addition, *soft edges* are apparent in areas where one successional stage gradually flows into another (like a forest into a marsh). In contrast, *hard edges* can be observed where there is an abrupt transition connecting different successional stages such as an edge between forested land and agriculture. This photo was taken in the winter, so evergreen species show up as dark green patches on the photo. When examining the forested land, you can see that there is a mix of evergreen and deciduous trees. Therefore, species which use mixed deciduous forests would benefit from this type of habitat.



The picture below represents an infrared aerial photo. Infrared maps are aerial/satellite images that are taken using infrared electromagnetic radiation (wavelength that is longer than visible light). These images are great for monitoring crops or vegetation as the green leaves will standout compared to other colors seen on a landscape.

Aerial photos for Maryland can easily be obtained from:

- Google Earth
  - www.google.com/earth/index.html
- MERLIN online
  - geodata.md.gov/imaptemplate/?appid=a8ec7e2ff4c34a31bc1e9411ed8e7a7e