Addressing Wildlife Needs in Construction Site Management Plans

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More than 1200 native species of wildlife (not counting insects and other invertebrates) live in Florida. Of these, about 500 spend their entire life in salt or fresh water. The rest—about 700 species of birds, mammals, reptiles and amphibians—obtain their life-sustaining requirements for at least part of their life cycles in terrestrial or dry habitats where most construction takes place.

An animal's habitat is where it lives. Individuals of some species are scattered throughout the state, while others are restricted to certain areas such as the Key deer in the Florida Keys. Each species (including humans) has unique, fundamental needs for food, cover, water, and space, and can live only where their specific combination of habitat requirements are available. This reduces conflicts and allows different species to live together in the same place. Most large natural areas provide diverse habitat requirements that can satisfy the needs of dozens of individuals of more than 100 different wildlife species.

Construction activities remove natural habitat requirements so that some native species' needs can no longer be satisfied. Because original habitat conditions are altered by construction operations, new requirements also may be created providing homes for a different array of species. The net effect is usually that most constructed sites 1) accommodate fewer native species (lower native biological diversity) that are already declining in numbers statewide (such as wading birds), and 2) offer conditions for species that are common in developed areas (such as mockingbirds, gray squirrels, and raccoons).

One of the most damaging environmental impacts of construction can be the elimination of threatened or endangered species from the site or adjacent areas. This can occur either when essential habitat requirements are removed or when disturbance activities cause the animals to abandon the site.

Wildlife Needs

The number of wildlife species eliminated from a construction site can be reduced by maintaining the greatest possible diversity of wildlife habitat requirements (food, cover, water, and space) through careful site planning.

Food

Plants are the primary source of energy, supporting large, complex food webs in any environment. Plant parts such as leaves, twigs, bark, roots, fruits, nuts, and seeds are eaten by insects, mammals, and birds, which in turn are eaten to sustain larger animals. Some plant parts (for example, leaves, nuts, fruit, and seeds) are available only seasonally, and the time of year differs by species. Diets of many wildlife species also change seasonally. For example, cardinals eat seeds during the fall and winter but switch to eating...
soft insects during spring and summer. A site management plan that maintains the greatest diversity of native plants (tall trees, understory trees, tall shrubs, small shrubs, and ground cover) will provide better food requirements than a plan that leaves only tall trees.

**Cover**

Wildlife species need protection from predators and weather. Cover helps to restrict the amount of food available at any time to each level in a food web so the energy flow will be sustained generation after generation. If all bird nests were highly accessible to predators, every egg and nestling would be consumed and no offspring would be available to perpetuate the important balance between predators and prey. Cover requirements are almost as diverse as food requirements and are also provided by non-plant habitat elements. Some insects feed on the underside of leaves to reduce detection; dozens of birds, mammals, reptiles and amphibians use tree cavities for nesting (e.g., woodpeckers) and sleeping (e.g., tree frogs); about 4 dozen species use underground burrows for nesting, sleeping, and hiding.

So best management practices for a construction site would include preserving the greatest diversity of plants, underground burrows, and dead trees (or 10-foot tall dead tree stumps that will not present liability hazards). If dead trees are removed, some of the cover requirements they provided can be replaced by installing bird houses.

**Water**

Fresh water is essential for most wildlife. Many species need to drink water and others—such as frogs and toads—require standing water to complete part of their life cycles. A water source on one construction site may be critical to all wildlife living in the entire neighborhood. Elevated bird baths are accessible to only birds. An in-ground pond with gently sloping sides allows many species to choose different depths to satisfy their requirements. Even small depressions that retain water only temporarily help to satisfy wildlife water requirements.

Many species also need access to both water and upland habitats to obtain the food and cover they need. Treefrogs lay eggs in water and the immature tadpoles live in water for weeks before they emerge as adults and spend the rest of their lives in trees. Semi-aquatic turtles live in the water most of the time, but one day of the year the female must travel into sandy upland habitats to dig a hole and lay her eggs. Maintaining native conditions in uplands adjacent to wetlands will help to assure access to habitats required for the entire life cycles of these species. Emergent and shoreline vegetation in and adjacent to aquatic areas will provide food and cover requirements for many wildlife species. Travel corridors from uplands to existing water supplies such as ponds and streams on or adjacent to the site will allow access by many species.

**Space**

An animal’s need for space is the size of area that contains sufficient amounts of food, cover, and water for it to survive. Common terms of expressing spatial needs are “territory,” which is the area defended by an animal and “home range,” which is the area actually used to obtain life-sustaining requirements.

*Space needs vary:* 100 miles$^2$ for a Florida panther, 2 miles$^2$ for a white-tailed deer in north Florida, and 3/4 acre for an Acadian flycatcher. Most species cannot satisfy their space requirements on a single construction site. By arranging remaining natural areas on each site so that they are adjacent to one another, larger intact quality habitats can be retained. These reduce the overall impacts of site construction better than if several smaller areas were retained.

Many species also have vertical space requirements. Some, such as the American crow, nest high in tall trees but feed on the ground. Others, like the Hooded warbler, nest close to the ground but feed in understory trees.

**Economic Justification**

Public opinion surveys have indicated that an overwhelming majority of property owners in Florida want to view and interact with nature, and even to attract wildlife to their property. Managing construction sites so that the final product will be most appealing to such a large property owner market is economically justified. Property owners and developers often use the wildlife diversity of a site or development as a marketing tool. If the recommendations here are incorporated into a construction site management plan and implemented, a win-win-win situation for the wildlife resource, the seller, and the buyer will result.