NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

WETLAND WILDLIFE HABITAT MANAGEMENT

(Acre)
Code 644

DEFINITION

Retaining, developing, or managing habitat for wetland wildlife.

PURPOSE

To maintain, develop, or improve habitat for waterfowl, or other wetland associated flora and fauna.

CONDITIONS WHERE PRACTICE APPLIES

On or adjacent to wetlands, rivers, lakes and other water bodies where wetland associated wildlife habitat can be managed. This practice applies to natural wetlands and water bodies as well as wetlands that may have been previously restored, enhanced, or created.

This practice does not apply to:

- Preserving natural areas, such as tidal marshes, freshwater wetland, rivers, streams, and riparian corridors, where no active management or periodic maintenance is planned.
- Managing ponds primarily for fish habitat.

CRITERIA

Wetland wildlife habitat management shall consist of managing water and/or vegetation to provide the type of wetland habitat, which will best meet the land user's objectives.

The following elements shall be considered when assessing existing and planned wildlife habitat. Not all elements may apply to every habitat type.

1. Food – types of food, quantity, quality, distribution, and seasonal availability.
2. Cover - types of cover (for nesting, brood rearing, resting, roosting, escape from predators, summer shade, travel corridors), quality, quantity, and distribution.
3. Water – quantity, quality accessibility, and seasonal availability.

Where habitat is lacking or less than optimum, provide nesting, feeding, resting, and/or protective cover, travel corridors, and water sources as needed, according to Caribbean Area conservation practice standards. These standards include, but are not limited to:

Filter Strip, Code 393

Pond, Code 378

Riparian Forest Buffer, Code 391

Streambank and Shoreline Protection, Code 580

Periodically manipulate one or both of the following habitat components.

Water – to provide the surface water and soil saturation needed for wildlife food, cover, and reproduction. Water control structures and/or pumping shall be used to manage the depth and duration of water needed by the desired species.

Vegetation – to provide the desired plants for wildlife food. Native plants will be used wherever possible. Where planting is involved, replanting will be required when survival is inadequate to provide the desired habitat feature. Supplemental watering may be desirable to ensure adequate survival of plantings.

The landowner shall obtain all necessary local, state and federal permits that apply.

CONSIDERATIONS

Planning considerations shall include:

Purpose of the project, including identification of wildlife species or groups of species to be supported and the habitat needs that can be met on the management property.

Site conditions such as soils, available water sources, water quality and quantity, and existing vegetation.

The feasibility of providing food, cover, and water for the desired wildlife species at the appropriate time of the year.

Effects of movement of dissolved substances on groundwater and on downstream surface waters.

Effects of hazardous materials expected or known to occur on the site on wildlife or human use related to wildlife.

Effects of management actions on compliance with state and federal regulations.

Effects of management on non-target fish and wildlife species and Threatened and Endangered Species.

Effects of livestock grazing on runoff, infiltration, and wetland vegetation.

Locating management practice adjacent to existing wetlands and other water bodies.

The impact of elevated wildlife uses on adjacent lands (e.g., crop depredation).

Effects of volume and rate of runoff, infiltration, evaporation, and transpiration on the water budget.

Effects on downstream flows or aquifers that would affect other water uses or users.

Adjacent wetlands or water bodies that contribute to wetland system complexity and diversity, decrease habitat fragmentation, and maximize use of the site by wetland-associated wildlife.

Effects on movement of sediment and soluble and sediment-attached substances carried by runoff and/or wind.

PLANS AND SPECIFICATIONS

Specific information may be provided using appropriate job sheets or written documentation in the conservation plan.

Targeted species of wildlife will be recorded.

Document how habitat needs will be provided for the desired kinds of wildlife:

- Required depth of water during the different seasons.
- Types and sizes of structures required.
- Desired native plant species and the means of establishing and maintaining them.

Refer to: Puerto Rico's Birds in photographs, Mark W. Oberle; A guide to the Birds of Puerto Rico and Virgin Islands - Herbert A. Raffaele and "Aves de Puerto Rico" – Virgilio Biaggi, Table 1 - Habitat, Feeding and Nesting Information for Common Birds, and Table 2 – Breeding Season for Common Wetland Birds, for specific design and management criteria for selected waterfowl species.

OPERATION AND MAINTENANCE

A plan for operation and maintenance at a minimum should include monitoring and management of structural and vegetative measures and also consider:

If the vegetation becomes too rank for utilization by target species, renovate by mechanical means.

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible.

Livestock and other domestic animals shall be controlled or excluded as appropriate from wetlands, shallow water areas, ponds and adjacent buffers.

Management and maintenance activities shall be conducted at times when there will be minimal disturbance of wildlife and their habitat.

Table 1. Habitat, Feeding and Nesting Information Regarding Wetlands Common Birds

Spanish Name	English Name	Scientific name	Habitat	Feeding	Nesting
Boba blanca	Red-footed Booby	*Sula sula*	Sea in deep tropical oceans.	Squid and fish.	Stick nest in a tree or brush.
Boba de cara azul	Masked Booby	*Sula dactylatra*	Feeds for long periods at sea in warm tropical waters.	Fish jacks and some squid.	Nests on the ground on rocky islands.
Chiriría	West Indian Whistling-Duck	*Dendrocygna arborea*	Fresh and saline bodies of water, wetlands, including lagoons, rice fields, and palm savannas, especially near mangroves, Pterocarpus, or other swamp-adapted trees.	Fruits, berries, seeds, grass, rice, and corn, and is particularly fond of the fruit of the royal palm (Roystonea sp.)	A cluster of palm fronds or cavity in a tree, bromeliads, Panicum grass, in tree stumps, or in clumps of palm leaves, usually near water.
Chirre	White-tailed Tropicbird	*Phaethon lepturus*	Around sea cliffs and rocky cays.	Squid and small fish.	Bare ledge or in a crevice on a rocky cliff or talus slope.
Chirre de pico colorado	Red-billed Tropicbird	*Phaethon aethereus*	Out at sea.	Fish	Rock crevices on small cays.
Gallareta común	Common Moorhen	*Gallinula chloropus*	Freshwater, brackish marshes, canals, ditches, mangroves, and ponds with dense vegetation.	Algae, plant leaves, seeds, and less common aquatic insects and worms.	Floating vegetation (enea, grass or aquatic plants) in a shrub, or on the ground near the water.
Gallinazo Caribeño	Caribbean Coot	*Fulica caribaea*	Freshwater areas.	Algae and other plant leaves and seeds; also insects.	Floating nest.
Gallito Amarillo	Yellow-breasted Crake	*Porzana flaviventer*	Freshwater swamps with short grass borders, pond edges, flooded fields, and ditches with dense vegetation.	Insects, seeds and crustaceans plucked from water or vegetation.	Woven nest a top of floating plant.
Garza	Great Egret	Casmerodius albus	Marshes, ponds, shores and mudflats.	Fish, frogs and insects.	Small sticks placed near or over water.
Garza Blanca	Snowy Egret	*Egretta thula*	Freshwater swamps, but can also be found around saltwater lagoons.	Small fish, amphibians, snakes, crabs, insects, and other invertebrates.	Nest is made of sticks.

Spanish Name	English Name	Scientific name	Habitat	Feeding	Nesting
Garza Real	Great Egret	*Ardea alba*	Fresh and salt water ponds, wetlands, canals, mangrove swamps, estuaries, lagoons, moist grassy fields, even small urban streams.	Fish, frogs, insects, crustaceans, and sometimes small birds.	Stick nest in treetop colonies over water.
Garzón Cenizo	Great Blue Heron	*Ardea herodias*	Ponds, lagoons, ocean shores, rivers, marshes, mangroves, and occasionally in grassy fields.	Fish, amphibians, snakes, crabs, other invertebrates and small mammals and birds when it can catch them.	Platform of twigs of variable height in a tree or brush.
Gaviota Pequeña, Gaviota Chica	Least Tern	*Sterna antillarum*	Shallow coastal marine waters and inland lagoons.	Small fish, shrimp and other marine invertebrates.	Nest scrape, adorned with bits of shells and pebbles.
Martinetito	Least Bittern	*Ixobrychus exilis*	Freshwater swamps with cattails and sometimes mangrove channels.	Insects and invertebrates.	Among the swamp vegetation over or near the water.
Pampero, Pimelco	Audubon's Shearwater	*Puffins lhermineri*	Open ocean; inshore waters close to its breeding colonies on rocky islands.	Fish, squid and crustaceans.	Breeding colonies on rocky islands.
Pato chorizo	Ruddy Duck	*Oxyura jaimaicencis*	Ponds, lagoons, marshes and lakes with emergent vegetation. Require areas that have open water as well as cover for protection during nesting. This includes tall weeds that provide access and ability to be bent over for nest bases.	Aquatic insects, snails, mollusks, worms.	Female builds a nest over water in swamp vegetation.
Pato dominico	Masked Duck	*Nomonyx dominicus*	Shallow fresh and brackish water ponds, lagoons, swamps and flooded fields with plenty or floating vegetation.	Seeds, roots, and shoots of aquatic plants and some insects and crustaceans.	Among the swamp vegetation over or near the water.

Spanish Name	English Name	Scientific name	Habitat	Feeding	Nesting
Pato quijada colorada	White-cheeked pintail	*Anas bahamensis*	Fresh and salt water ponds, lagoons and mangroves swamps.	Seeds and leaves of algae and other aquatic plants.	Scrape is made on dry land and concealed under a clump of vegetation, sometimes a great distance from water.
Playero Blanco	Snowy plover	*Charadrius alexandrinus*	Salt ponds and sandy beach areas.	Insect larvae and invertebrates.	Depression in a dry, sandy area.
Pollo de Mangle	Clapper Rail	*Rallus longirostris*	Mangroves	Fiddler crabs and other crab species from the surface, and will also eat some snails, worms, small fish and aquatic insects.	Platform of sticks among the mangrove roots.
Tigua	Least Grebe	*Tachybaptus dominicu*	Forages in freshwater ponds, canals and temporary pools with thick floating vegetation.	Aquatic beetles, dragonfly larvae, waterbugs, and other insects, plus crustaceans, tadpoles and small fish.	Floating mat of decaying vegetation.
Yaboa Real	Black-crowned Night-Heron	*Nycticorax nycticorax*	Freshwater swamps, it is found at times in brackish water lagoons and salt ponds.	Fish, frogs, invertebrates, and the eggs of other birds, but it is especially fond of crabs.	Stick nest in a tree.

Sources:
Puerto Rico's Birds in Photographs, Mark W. Oberle
A Guide to the Birds of Puerto Rico and Virgin Islands, Herbert A. Raffaele
Las Aves de Puerto Rico, Virgilio Biaggi

Breeding Season for Common Wetlands Birds

			Breeding Season*											
Spanish Name	English Name	Scientific Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Boba blanca	Red-footed Booby	*Sula sula*			●	●				●	●	●	●	●
Boba de cara azul	Masked Booby	*Sula dactylatra*	●	●	●	●	●	●			●	●	●	
Chiriría	West Indian Whistling-Duck	*Dendrocygna arborea*	Nesting season is variable											
Chirre	White-tailed Tropicbi	*Phaethon lepturus*			●	●	●	●						
Chirre de pico colorado	Red-billed Tropicbird	*Phaethon aethereus*	●	●	●	●	●	●						
Gallareta comun	Common Moorhen	Gallinula chloropus		●	●	●	●							
Gallinazo Caribeño	Caribean Coot	*Fulica caribaea*			●	●	●							
Gallito Amarillo	Yellow-breasted Crake	*Porzana flaviventer*			●									
Garza	Great Egret	Casmerodius albus			●	●	●							
Garza Blanca	Snowy Egret	*Egretta thula*			●	●	●							
Garza Real	Great Egret	*Ardea alba*			●	●	●							
Garzón Cenizo	Great Blue Heron	*Ardea herodias*			●	●	●							
Gaviota Pequeña, Gaviota Chica	Least Tern	*Sterna antillarum*					●	●	●	●				
Martinetito	Least Bittern	*Ixobrychus exilis*				●	●	●	●					
Pampero, Pimelco	Audubon's Shearwater	*Puffins lhermineri*		●	●	●	●							
Pato chorizo	Ruddy Duck	Oxyura jaimaicencis	●	●	●	●	●	●				●	●	●
Pato dominico	Masked Duck	Nomonyx dominicus												
Pato quijada colorada	White-cheeked pintail	Anas bahamensis	●	●	●	●							●	●
Playero Blanco	Snowy plover	*Charadrius alexandrinus*	●	●	●	●	●	●	●	●				
Pollo de Mangle	Clapper Rail	*Rallus longirostris*				●	●	●				●	●	
Tigua	Least Grebe	*Tachybaptus dominicus*			●	●	●				●	●	●	
Yaboa Real	Black-crowned Night-Heron	*Nycticorax nycticora*	●	●	●	●	●	●						●

* Breading season ocurrs year around with the peak in this month.

Sources:
Puerto Rico's Birds in Photographs, Mark W. Oberle
A Guide to the Birds of Puerto Rico and Virgin Islands, Herbert A. Raffaele
Las Aves de Puerto Rico, Virgilio Biaggi