

Peregrine Falcon Monitoring at Padre Island

By Jennifer Bjork

It is October. The threatened tundra population of the peregrine falcons (*Falco peregrinus tundruis*) will have reached Padre Island, Texas, by now, arriving via two flyways, one group from Greenland, the other from Arctic Alaska and Canada. They will rest and feed before continuing their migration to South America.

Where do the birds congregate? Hunt, Rogers and Slowe (1975) observed that the wind-tidal flats create ideal foraging opportunities for peregrines. This area is a flat expanse of fine-grained sand covered by an algal mat overwashed by a thin layer of seawater during extreme high tides. It provides no protective cover for birds chased by peregrines. The flats are studded with small vegetated sand dune mounds, the preferred perch for peregrines. The falcons lean into the wind and wait for their prey, predominantly migrating passerine and shorebirds. The falcon takes flight, stoops and hammers the prey with its feet, then flies in a circle to gain altitude and stoops again, eventually grabbing the prey.

The southern half of Padre Island National Seashore contains these extensive wind-tidal flats. Padre Island is a barrier island at the southern end of a chain of such islands along coastal Texas. It is the longest, continuous barrier island in North America: the National Seashore runs 68 miles along the length of the undeveloped section.

The peregrine researchers will arrive, also. They will use a rubber inflatable boat to transfer supplies and two 4-wheel off-road vehicles (ORVs) across the man-made cut through Padre Island at Mansfield Channel to the southern end of the National Seashore. Two tents will be set up behind the dune line so they won't be visible to park visitors. Access to and from the beach will be on natural washes through the dunes, so as not to damage the island's first line of protection from the sea.

In 1979, Hunt, Johnson and Ward radio-tagged 15 peregrines on South Padre Island and found that they remained in south Texas for from 3 to 28 days, concluding that Padre Island is an important resting and feeding or staging area for this migrant species. Data to date indicate that peregrines move into and out of the staging area at Padre Island with the arrival and passage of cold fronts. They remain for extended periods of time. It is important to understand that no assemblage of spring migrant peregrines has been noted elsewhere.

Researchers from the University of Texas Science Center, K.E. Riddle, D.C. Morizot and their graduate students, have been monitoring peregrine falcons at Padre Island for 10 years. Migrating peregrines are counted, observed, sexed and aged, if possible from feather coloration and size. Attempts are made to trap as many as possible in order to gather further information. Each captured peregrine is tagged in order to be able to track individuals and to monitor population trends through band recoveries and sightings. Two cubic cen-



A peregrine falcon is released during Fall 1987 migration monitoring at Padre Island NS.

timeters of blood is withdrawn for later analysis. Genetic markers in blood proteins are examined to determine natal origin and thus, geographic population. Feather condition, fullness of crop, and density of muscle also are examined to determine the general health of each individual.

Data on migratory falcons on Padre Island have been compiled from 1982 through 1987. Reports are missing from both the spring and fall of 1985 sampling seasons. These and data prior to 1982 will be added.

Since 1981, over 7,180 birds have been counted in the wind-tidal flats, an average of 1,026 per trapping season. An average of 15 percent (range 9.7-25.9 percent) of the birds seen are trapped. After an examination of trapping records, a disparity in adult to immature ratios has emerged. There are reduced numbers of adults in the fall and reduced numbers of immature birds in the

spring. Most birds sighted and trapped are females, an average of 85 percent. This may be due to different migratory habits of males, for example, following different prey species and/or taking longer flights over water.

Research has been funded from non-NPS sources. Through the Collecting Permit system, we have been able to work with researchers in directing the study to impact the resource as little as possible while gaining the maximum amount of information. Access behind the dune line is through storm breaks in the dunes. Off road vehicles are primarily driven on "roadways" established years ago by oil and gas seismic vehicles. The camp facility is situated in the back dune area where it has little impact. Drinking/wash water is brought by the researchers with the supplies. All garbage is taken out at the end of the field sampling effort. All captured falcons are released at the capture site after banding and blood sample collection. A good working relationship has developed. From the required research reports and interaction with the people working on the project, the park has learned much about the mud flat area of the park.

Padre Island provides a critical concentration point during lengthy migrations in the spring and fall. It provides an extensive land area with reduced human interference. Once this valuable habitat has been delineated, it has been and will be protected as a critical habitat in park planning documents. No recreational ORVs are allowed on these mudflats at any time. Oil and gas exploration mandated by the enabling legislation is not allowed during spring and fall migration periods. No oil or gas development will be allowed in this critical staging area.

Peregrine falcon populations began to decline in the late 1940s with the advent of widespread agricultural use of organochlorine pesticides, especially DDT. Egg-shell thinning was the main cause. The peregrine falcon has made a substantial recovery, mostly due to reduction in pesticide use. Protection of critical habitats will be important in maintaining the current population levels of this species.

As a result of cooperation and understanding between research and park managers, this project has been conducted smoothly for many years providing informa-



Peregrine falcon (Falco peregrinus).

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tion valuable to the protection of the threatened bird and of park areas it uses.

Bjork is a Natural Resource Specialist at Padre Island National Seashore.

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