



The Family

Climatic conditions are

and rust-colored neck plumages. The tips of their bills are bright red. Montgomery says, "They spend a lot of time displaying these colors, flapping wings and rubbing necks. They're even more comic-looking than usual."

After mating, each pair builds a nest. As many as a dozen pairs may nest in a single tree. The female lays three eggs and the parents share incubation duties of turning the eggs and protecting them from heat and predators. Pink, featherless chicks emerge after a month. In a good year this is the time of another cold water upwelling and another surge in the available fish population. With abundant food, in three months the chicks reach adult size, and

By JULIE ANN MILLER

Spring is the time for falling in love, according to folklore. But brown pelicans of Panama prefer mating in the winter. The events of pelican reproduction — mating, nesting and nurturing — are strictly dependent on climatic conditions, says Gene Montgomery of the Smithsonian Tropical Research Institute in Panama. He has pieced together the pattern of successful brown pelican nesting after observing thousands of birds over four years on two small Panamanian islands. These islands, Taboga and Urabá, are the location of nests of about a third of the world's brown pelicans, Montgomery says.

In a "good year," Montgomery reports, when strong trade winds begin to blow at the beginning of the dry season (around January 1), migratory brown pelicans start arriving in the Gulf of Panama to join about

2,000 permanent pelican residents. The winds lift cold water containing a rich mixture of nutrients from the ocean depths, and they bring deep-water fish toward the surface. These fish serve as a banquet for the brown pelicans, which dive from great heights to catch fish a few feet below the surface.

The drop in water temperature coincides, not only with feasting, but also with a frenzy of courtship and nest building. "You know — cold feet, warm heart!" Montgomery says. The courting birds have bright yellow head plumages



Pelicans often dive from great heights for fish (top of page). Ocean conditions determine the abundance of food, which parents catch to nourish chicks. Month-old chicks from one nest are already beginning to develop black feathers, as an adult in a nearby nest incubates three eggs (above). Female pelican flaps wings as she takes off from her nest (left).

of Pelican

crucial to pelicans' nesting success

Brown pelican guards its three chicks, which are about 18 days old.



they depart in August or September shortly after their parents.

Montgomery estimates that 50,000 to 100,000 brown pelicans nested in Taboga and Urabá in the 1980-1981 season. On the average, slightly more than one chick survived to the flying stage of development from each nest of three eggs. The only larger brown pelican nesting colony in the Northern Hemisphere is in Baja California.

But every year is not a good year for pelican reproduction. In 1981-1982, a poor upwelling and subsequent warm waters resulted in widespread nesting failure. Almost no pelican chicks were success-

fully fledged, Montgomery says. He is concerned that nesting success will be low again this year due to unusual weather in the Pacific (SN: 2/26/83, p. 135).

Because pelicans live up to 30 years, a few bad breeding seasons are not necessarily disastrous for the survival of the species. But Montgomery worries about their effect added to the problems caused by human activities: habitat destruction (in Latin America especially by agricultural development) and water pollution. "The fact that the brown pelican has made a comeback in parts of the United States may be leading to complacency about its

future," he says.

Montgomery is eager to preserve part of the islands as a Panamanian national seabird refuge to protect the nesting habitat of brown pelicans, and also of cormorants, boobies and frigate birds. He proposes it would also allow people to view the excitement and color of the nesting colony. He says, "I don't know of another place in the world where you can look down into thousands of brown pelican nests and not disturb the birds." □

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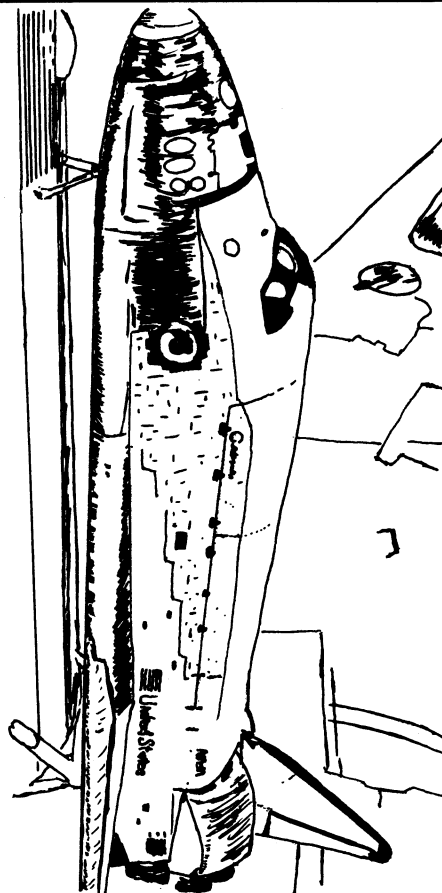
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