

known to use with insects (Wetmore, *Birds of Puerto Rico*, United States Department of Agriculture, Washington, 1916). We returned to the site on the next morning but saw neither terrestrial locomotion by *Poecilia* nor fish predation by *T. dominicensis*. On 5 June, heavy rains during the preceding night raised water levels in the stream, and previously discrete pools merged. These observations support Wunderle's (1981) suggestion that island flycatchers may broaden their diet opportunistically by applying their normal hunting techniques to novel prey.

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**Aerial plunge foraging by a Great Blue Heron.**—Wading birds are noted for the plasticity and diversity of their foraging behavior (Kushlan 1978a). Kushlan (1978b) suggests that novel or rare techniques are most likely to be added to the foraging repertoire of wading birds after nesting, when time and energy demands diminish. Individual specialization (Kushlan 1973b) possibly involving learning (Recher and Recher 1972) may increase the efficacy of an uncommon strategy to the point where it becomes an important part of the foraging repertoire of an individual bird. In North America, large wading birds such as the Great Blue Heron (*Ardea herodias*) tend to exhibit less diversity in feeding style than do smaller herons (Kushlan 1976, Willard 1977), and the less common components of their foraging repertoire are not well documented. This report describes the environmental context and behavior of a single Great Blue Heron that repeatedly used plunging (Kushlan 1973a) as a foraging technique.

On 13 October 1977 we observed a Great Blue Heron as it foraged at Tulloch Lake, a large artificial impoundment in the foothills of the central Sierra Nevada, California. The bird made three foraging flights from a large rock outcrop near the water's edge and plunged each time from slow forward flight into water over 10 m in depth. Two of the plunges were successful, and the heron rose from the water with a 10–18 cm bluegill (*Lepomis macrochirus*: Centrarchidae) in its mandibles. On 23 October the same heron (recognized by fishing line tangled around one foot) was observed continuously for 5 h. The fishing line did not appear to preclude normal flying or landing, but its effect on wading ability could not be determined because the bird did not wade. The heron made repeated foraging flights from the same rock outcrop it had used 10 days earlier. The bird obviously oriented toward water disturbances made by surfacing fish. When we threw rocks into the water from our observation point (150 m distant and on the opposite shore from the heron's perch), the heron initiated aerial foraging over the area of the disturbance; it oriented its flight and turned its head toward individual ripples caused by the rocks. Ten of the flights ended in deep water plunges, five of which were successful. After a successful plunge, the heron rose from the water immediately and returned to the rock outcrop where it swallowed its prey (*L. macrochirus*). After unsuccessful plunges, the heron circled over the feeding area, either immediately or after floating on the surface for up to 15 sec. During the two days of observation (5.5 h), the heron made about 20 foraging flights over deep water and plunged 13 times. Seven of the plunges (54%) were successful. During our observations, the heron did not use other foraging techniques and no interactions with other birds were observed.

In large foothill impoundments, bluegill commonly occur in the offshore epilimnion (McGinnis 1984), and during fall they prey heavily on flying insects and other terrestrial arthropods (Goodson 1965), most of which are taken on the surface. We believe the surface activity we saw was normal bluegill feeding behavior.

Our observations were made in October, after the heron nesting season and during the period when intermittent foothill streams, which provide foraging areas during the rest of the year, are dry. At this time shallow water wading sites are scarce. We suggest two environmental factors, a temporary abundance of detectable open water prey and a lack of shallow water wading sites, as proximal stimuli for the plunge foraging specialization we observed in this heron. Furthermore, we can not rule out the possibility that the tangle of fishing line around one foot precluded typical foraging.

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#### LITERATURE CITED

- GOODSON, L. F. 1965. Diets of four warmwater gamefish in a fluctuating, steep-sided reservoir. *California Fish and Game* 51:259–269.
- KUSHLAN, J. A. 1973a. Black-crowned Night Heron diving for prey. *Florida Field Nat.* 1: 27–28.
- . 1973b. Bill vibrating—a prey attracting behaviour of the Snowy Egret, *Leucophaea thula*. *Am. Midl. Nat.* 89:509–512.
- . 1976. Wading bird predation in a seasonally-fluctuating pond. *Auk* 93:464–476.
- . 1978a. Feeding ecology of wading birds. Pp. 249–296 in *Wading birds* (A. Sprunt IV, J. C. Ogden, and S. Winkler, eds.). National Audubon Society, New York, New York.
- . 1978b. Nonrigorous foraging by robbing egrets. *Ecology* 59:649–653.
- MCGINNIS, S. M. 1984. *Freshwater fishes of California*. Univ. California Press, Berkeley, California.
- RECHER, H. F. AND J. A. RECHER. 1972. The foraging behavior of the Reef Heron. *Emu* 72:85–90.
- WILLARD, D. E. 1977. The feeding ecology and behavior of five species of herons in southeastern New Jersey. *Condor* 79:462–470.
- STEVEN R. MOREY, *Great Valley Museum, 1100 Stoddard Ave., Modesto, California 95350*; AND ALLAN SMITS, *Dept. Zoology, Univ. Massachusetts, Amherst, Massachusetts 01003*. Received 8 Aug. 1986, accepted 19 Nov. 1986.

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**Allofeeding in American Goldfinches (*Carduelis tristis*).**—The passing of food between birds (including individuals of the same sex) outside the breeding season has been termed allofeeding (Smith, *Condor* 82:291–295, 1980). Previous studies have shown a relationship between allofeeding and dominance. Here, I report allofeeding among American Goldfinches (*Carduelis tristis*) and its relationship to dominance status. Allofeeding has been reported previously in the genus for the Eurasian Siskin (*C. spinus*) (Mundinger, *Science* 168:480–482, 1971; Senar, *Condor* 86:213–214, 1984).

I maintained a group of captive American Goldfinches in a 1 × 1.5 × 2 m indoor aviary