

PREY-INDUCED MORTALITY OF A PIED-BILLED GREBE

ROBERT A. BEHRSTOCK, Department of Fisheries, Humboldt State University, Arcata, California 95521 (present address: Peregrine, Inc., P.O. Box 3062, Houston, Texas 77001)

On 9 January 1977 James A. Gast of Arcata, California, picked up a dead Pied-billed Grebe (*Podilymbus podiceps*) at the mouth of Maple Creek, Humboldt County, California. Because there are relatively few documented cases of natural mortalities in birds, I present some information on this one.

The grebe, a robust male, weighed 564 g, and had a wing chord of 142 mm. A Prickly Sculpin (*Cottus asper*) protruded outward between the bird's mandibles (Figure 1). The sculpin, a female, was 131 mm standard length (tip of snout to base of caudal fin), 153 mm total length, and weighed 42.4 g (preserved wet weight). It had large ovaries weighing 5.3 g, with maturing ova which caused the abdomen to bulge. The preopercular spine of each gill cover protruded slightly and appeared to be lodged in the gular skin of the grebe just posterior to the base of the mandibles. The entire gular region was examined for hemorrhaging, or obvious internal injuries. As none were discovered, I assumed the cause of death to be suffocation. Both bird and fish were in fresh condition.

Whether an intact prey item can be ingested by a predator is determined by such factors as the greatest circumference and flexibility of the prey, the width and height of the predator's gape, the elasticity of the gular area and esophagus, and the presence or absence on the prey of outward-projecting structures which could hinder ingestion. The greatest width, height and circumference of the sculpin's head were 28 mm, 21 mm and 80 mm respectively. These dimensions probably did not exceed the elasticity of the gular area of the grebe, a species which has both anatomical and behavioral traits for handling large, spiny prey.



Figure 1. Dead Pied-billed Grebe with dead Prickly Sculpin protruding from its mandibles.

Photo by Robert A. Behrstock

NOTES

Sculpins, including *Cottus asper*, are known foods of Pied-billed Grebes (Palmer 1962). Zusi and Storer (1969), in reviewing some literature on food habits of grebes, suggested that the stout bill and heavy jaw musculature of these birds evolved to deal with heavy-bodied prey such as crawfish, frogs and fishes. Such prey items are subdued by repeated pinching and beating prior to ingestion. Wetmore (1924) stated that the pectoral and dorsal spines of a Channel Catfish (*Ictalurus punctatus*), and the claws of a large crayfish were removed prior to ingestion by a Pied-billed Grebe. Apparently, an attempt was made to swallow this fish before it was adequately subdued. The sculpin's expanded gill covers and their outward-projecting preopercular spines prevented both ejection or further ingestion, eventually causing the grebe to suffocate.

The grebe is specimen 4077 in the museum of the Department of Wildlife, Humboldt State University (HSU), Arcata, California. The sculpin is specimen 31000-28B in the Fisheries Collection, Department of Fisheries (HSU). I thank James A. Gast for turning over his unusual find, and James R. Koplín for commenting on this manuscript and encouraging my interest in fish-eating birds.

LITERATURE CITED

- Palmer, R.S., ed. 1962. Handbook of North American birds. Vol. 1. Yale Univ. Press, New Haven, CT.
- Wetmore, A. 1924. Food and economic relations of North American grebes. U.S. Dep. Agric. Bull. 1196. 23 p.
- Zusi, R.L. & R.W. Storer. 1969. Osteology and myology of the head and neck of the Pied-billed Grebes (*Podilymbus*). Univ. Michigan Mus. Zool. Misc. Publ. 139. 49 p.

Accepted 16 March 1982

CORRIGENDA

Western Birds 12(2). 1981 (Breeding Avifaunas of the New York Mountains and Kingston Range): p. 80, under Rufous-sided Towhee, change "*Larrea*" to "*Garrya*"; p. 81, under section B, add "Hepatic Tanager (NU). A female was sitting on a nest and a male was nearby."