

## SOME FOODS OF CORMORANTS IN NORTH QUEENSLAND

During December 1962, claims were investigated that cormorants affected populations of trout liberated in Tinaroo Dam, which is situated on the Barron River, 30 miles south-west of Cairns, and in the North Queensland Coast and Atherton Tableland fauna sanctuary (see Roff 1962). Some 330,000 acre feet of water are impounded by the Dam, but this varies with the seasons. Littoral and aquatic vegetation has developed since completion of the Dam in 1959; many of the flooded reaches still contain dead trees. These areas are the sites of a number of breeding rookeries, particularly of the little black cormorant, *Phalacrocorax sulcirostris* Brand, and the little pied cormorant, *P. melanoleucus* (Vieillot) (Figure 1). A visit during May 1962 revealed few birds and only deserted rookeries. Breeding is from August to January, and during December 1962 three rookeries, the largest of more than 100 nests of three cormorant species, were examined: many nests were deserted, or the young were well advanced. Other water birds abound from time to time.



Fig. 1.—Part of a cormorant rookery on Tinaroo Dam, North Queensland; December 1962.

Rainbow fish (*Melanotaeniidae*) and possibly freshwater catfish (*Plotosidae*) are the only fish native to the upper Barron River. At intervals over the past four or five decades, attempts have been made by interested parties to introduce fish for angling or forage purposes into this watershed. In recent years the bulk

of such activities has been carried out by the Tableland Anglers' and Acclimatisation Society. Apart from the introduction of hatchery-bred trout, this Society has transferred native freshwater species from neighbouring rivers on each side of the Great Dividing Range. These efforts have been concerned with spangled perch, *Therapon unicolor* Gunther; northern percelle ("mouth almighty"), *Glossamia aprion* (Richardson); sleepy cod, *Oxyeleotris lineolatus* (Steindachner), and possibly *Bunaka herwerdenii* (Weber); archer-fish, *Toxotes chatareus* (Hamilton-Buchanan); sooty grunter, *Therapon fuliginosus* Macleay; freshwater catfish, *Tandanus tandanus* Mitchell; straight-backed freshwater catfish, *Neosilurus mortonii* Whitley; salmon catfish, *Tachysurus berneyi* Whitley; long-tom, *Stenocaulus krefftii* (Gunther); freshwater sole, *Synaptura selheimi* Macleay; bony bream, *Fluvialosa bulleri* Whitley; grunters, *Therapon* spp.; rainbow trout, *Salmo gairdneri* Richardson; brown trout, *Salmo trutta* Linnaeus; and perchlets, *Ambassis* spp. Spangled perch, northern percelle, sleepy cod and archer-fish are known to have become established, with the first two now abundant.

From populations of some 300 little black cormorants; 200 little pied cormorants; 10 black cormorants, *Phalacrocorax carbo* (Linnaeus); and 50 darters, *Anhinga novae-hollandiae* Brisson, 105 (Table 1) were taken (by H. J. L.) near the rookeries during daylight hours. The majority were adults returning with food. Stomach contents were counted, in some instances measured and weighed, and preserved for specific identification (by N. M. H.).

TABLE 1  
BIRDS EXAMINED FOR STOMACH CONTENTS, TINAROO DAM,  
DECEMBER 5-7, 1962

| Birds                          |           | No. of Stomachs   |       |  |
|--------------------------------|-----------|-------------------|-------|--|
| Common Name                    | No. Taken | With Food Content | Empty |  |
| Little black cormorant .. .. . | 55        | 32                | 23    |  |
| Little pied cormorant .. .. .  | 40        | 29                | 11    |  |
| Black cormorant .. .. .        | 1         | 1                 | ..    |  |
| Darter .. .. .                 | 9         | 6                 | 3     |  |

The recognizable stomach contents of the 32 little black cormorants were mostly fish (22 spangled perch, 20 northern percelle and 2 sleepy cod). Bark, sticks and similar plant material were present in 9 stomachs, and parasitic nematodes in 17. In stomachs of the 29 little pied cormorants fish occurred most frequently (2, 17, 11). Palaemonid crustaceans, *Macrobrachium* spp., were an important item of diet; some Acridiidae and a freshwater gastropod were also present. Plant debris was recorded in 24 stomachs, and nematodes in one. The stomach of the black cormorant contained one spangled perch and fish debris. Spangled perch were present in all darter stomachs, with northern percelle in two. A mixture of aquatic vegetation and sand was also present.

The largest fish recorded was a northern percelle 18 cm long, and the heaviest a spangled perch weighing 128 g. There was no correlation of fish size and weight with bird species. Furthermore, nestling birds were found to contain fish as large as those in adults.

These data support the view "that cormorants will feed on whatever prey may be taken in quantity with the least effort" (McNally 1957). On the Tinaroo Dam at the present time species of fish liberated for angling purposes and now abundant provide the major foods for these birds which annually inhabit the area. That the 3,000 trout fingerlings liberated in the Dam during May 1962, when cormorants were scarce, are no longer concentrated and thus available for intensive predation is demonstrated by the absence of this fish in stomachs of birds taken during the following December. If, however, trout become established and the cormorant populations increase in size, a quantitative study of the effects of predation in this area may be warranted.

## REFERENCES

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(Received for publication July 19, 1963)