are ecologically incompatible. They appear to be reproductively isolated for each maintains its distinctive features. However, that statement must be qualified by reference to two adult females of *harmonica* from the Aroona Valley of the Flinders Ranges which are slightly coloured with pale cinnamon. This may be evidence of gene flow but if there is hybridization the hybrids must be restricted to a very narrow belt. Until the question has been studied in detail it seems that the best course is to accept that there is a non-breeding relationship between *rufiventris* and *brunnea*.

Dimensions

Dimensions throughout the group are summarized in the following table. They are remarkably consistent, which seems to imply that all the birds are very similar in their behaviour and ecological requirements. The assumption is that they are subjected to the same factors determining size. There is a slight exception in the case of the populations isolated in Tasmania where there is a small but quite definite increase in bill length, possibly due to some change in feeding habits.

REFERENCES

Cayley, N. W. 1963. *What Bird is That?* Angus and Robertson.
Condon, H. T. 1951. Notes on the Birds of South Australia. *S. Aust. Orn.* **20**: 26-68.
Iredale, T. 1956. *Birds of New Guinea.* **2**. Melbourne.
Macgillivray, W. 1914. Notes on some North Queensland birds. *Emu* **13**: 132-186.
Mack, G. 1954. Birds from Cape York Peninsula. *Mem. Queens. Mus.* **13**: 1-39.
Mayr, E. and Serventy, D. L. 1944. The number of Australian bird species. *Emu* **44**: 33-40.
Mees, G. F. 1961. An annotated catalogue of a collection of bird-skins from West Pilbarra, Western Australia. *J. Roy. Soc. W.A.* **44**: 97-143.
Thomson, D. F. 1935. *Birds of Cape York Peninsula.* Melbourne.

British Museum (Natural History), Cromwell Rd., London, England.

Eastern Spinebill distribution.—At 8.00 a.m. on June 29, 1967, I observed an Eastern Spinebill moving through the outer foliage of the large River Gums beside Stephens Creek, 10 miles north of Broken Hill, N.S.W. It was plainly seen by me through 8 x 30 binoculars and I know the species very well. This would appear to be a new locality record. Gannon (1962) in his summary of the known distribution at that date does not show it, in his map no. 10, as occurring in the dry western area of N.S.W. at all, neither does he mention this in his text.

Condon 1962 states, for South Australia, that it occurs at Adelaide Plains, Mt. Lofty, and the southern Flinders Ranges.

The bird seen gave the impression that it was on the move and it would seem that it had probably come up from the Flinders Ranges or perhaps up the Darling River.—H. J. de S. DISNEY, Australian Museum, Sydney.

REFERENCES

Condon, H. T. 1962. A Handlist of the birds of South Australia. *South Australian Ornithologist*, **23**: 87-149.

Gannon, G. R. 1962. Distribution of the Australian Honeyeaters. *Emu* **62**: 145-166.

White-breasted Cormorant swallows pebbles on land.—At 8.30 a.m., April 5, 1967, on a gravel spit at Wright's Island near Devonport, Tasmania, an adult White-breasted Cormorant, *Phalacrocorax fuscescens*, was seen searching out and picking up smooth pebbles with its bill. The pebbles were about 10 mm. in diameter and at least four were swallowed. The cormorant was in a flock of about 300 White-breasted Cormorants that had spent the night on the gravel spit. Five minutes after swallowing the pebbles it left the spit with two other birds, presumably to go fishing. In a sample of 17 pebbles from the gravel spit, similar to those taken by the cormorant, their density was found to be two to three gm./cc.

Lewis, H. F., 1929, in *The Natural History of the Double-crested Cormorant* (Phalacrocorax auritus auritus (Lesson)), Ru-Mi-Lou Books, Ottawa, 94 pages, reviews the frequent occurrence of small stones in stomach samples of Double-crested Cormorants and mentions that one of these stones weighed 18 gm. He doubted that all of these stones had been in the stomachs of their prey, although he had found similar stones in one of the fish species which Double-crested Cormorants eat. He believed that stones were picked up inadvertently when cormorants snap at their prey on a rocky bottom. He mentions how wild cormorants regurgitate pebbles from time to time, while captive cormorants which were fed dead fish are found to have no pebbles in their stomachs, even when pebbles are present in their enclosures.

Cott, H. B., 1961, in "Scientific Results of an Inquiry into the Ecology and Economic Status of the Nile Crocodile (*Crocodilus niloticus*) in Uganda and Northern Rhodesia", *Trans. Zool. Soc.* London **29** (4): 211-356, found in crocodiles that their specific gravity is increased and their centre of gravity is lowered when stones are swallowed. The improvement in hydrostatic trim assists the crocodiles in moving smoothly in water and in holding large prey underwater.

As a morphological adaptation to lower buoyancy for locomotion underwater, cormorants have a body plumage which is pervious to water. The swallowing of stones could be a behavioural adaptation which reduces buoyancy even further.—G. F. van TETS, Division of Wildlife Research, C.S.I.R.O., Canberra.