

SONG THRUSHES FEEDING ON MUD SNAILS

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ABSTRACT

Song Thrushes *Turdus philomelos* were found feeding on mud snails at Papanui Inlet, Otago Peninsula. Thrushes break open mud snails with the same technique that they use for garden snails but their hammering must be more persistent because of the thicker shell. The distribution of this habit is discussed and further records requested.

RECORDS OF THRUSHES FEEDING ON MUD SNAILS

On two occasions during the 1970-71 summer, Song Thrushes *Turdus philomelos* were seen feeding on mud snails *Amphibola crenata* Martyn, in two separate areas of Papanui Inlet, Otago Peninsula. The first place was by Dick Road, to the east of where the road leaves the inlet and the second was where Sheppard Road joins the inlet. On 2/12/70 I saw a thrush fly down to a drainage ditch by the inlet and pick up something in its beak and fly with it under a tree lupin. A loud scraping noise followed and when I disturbed the bird I found a stone surrounded by mud snail shells being used by the thrush as an anvil (Figure 1). Seven shells had been broken open in the same way and three more, including the fresh one just gathered, were intact or only chipped. Several other clusters of broken *A. crenata* shells were found around stones within this area on this occasion and on subsequent visits. Some anvils were on



FIGURE 1 — The first thrush's anvil discovered at Papanui Inlet, Otago Peninsula, surrounded by mud snail shells.

the grass bank and others in the ditch itself. The first anvil was visited eight times after the original discovery and the shells were counted and removed. The results are shown below:—

| Date | No. of <i>A. crenata</i> shells | Date | No. of <i>A. crenata</i> shells |
|----------|---------------------------------|---------|---------------------------------|
| 9/12/70 | 8 | 28/2/71 | 8 |
| 23/12/70 | 26 | 19/3/71 | 0 |
| 2/1/71 | 8 | 18/4/71 | 7 |
| 3/2/71 | 16 | 22/5/71 | 2 |

On 2/1/71, I saw a thrush hopping over the mudflats just after the tide had fallen and pick up and drop a mud snail several times. Then it flew on to the road and banged the shell against a stone. When the road was examined a large quantity of broken mud snail shell was found mixed with the road metal and broken shells were also found on the mudflat, just below the sea wall.

Kinsky 1970⁽³⁾ was the first to report seeing thrushes feeding on mud snails when he visited Rough Island in the Nelson area during October 1969. He and his companions saw at least two dozen thrushes visiting the mudflats for *A. crenata* and taking same to their nestlings for food. Kinsky remarked that the area could not have supported so many thrushes unless they exploited this source of food. Mr. A. Wright, Wildlife Ranger for Otago Peninsula, has told me that he has seen thrushes taking mud snails on the harbour side of Otago Peninsula.

THE TECHNIQUE OF SMASHING SHELLS

An examination of the broken shells (Figure 2) shows immediately that they have all been broken by the same technique. The apical part of the shell is broken into a large number of small pieces which fall away from the largest and strongest whorl near the opening. It is evident that the thrush holds the shell by the rim as it bangs it against a rock. The thrush does not hit the shell with a vertical movement, which might be expected, but it brings down the shell onto a rock with a downwards and sideways movement of the head. Morris 1954⁽⁴⁾, suggested that snail hammering by thrushes may have been derived from pecking and shaking movements, or beak wiping. Morris studied the method by which thrushes break garden snails and his description, with the photographs in his report, make it clear that garden snails and mud snails are broken open in the same way. Granada T.V. have made a film which shows thrushes breaking garden snails. The film is called "Song thrushes: Snail smashing; Mongoose: Egg smashing," and it is available from the New Zealand National Film Library, catalogue entry A3440.

It would be interesting to know how snail smashing develops in thrushes. In his paper Morris 1954⁽⁴⁾ quotes the observations of the naturalist Pitt, who hand-reared a thrush and offered it snails when it was fully fledged. She found that the shell smashing behaviour developed gradually and that the first reaction of the thrush to snails was to peck at moving snails. When tested two days later the thrush pecked harder, turned the shell and looked into the cavity and shook the shell before casting it away. After another two days it carried a snail around and struck it on the ground several times and finally battered it open and ate the contents.

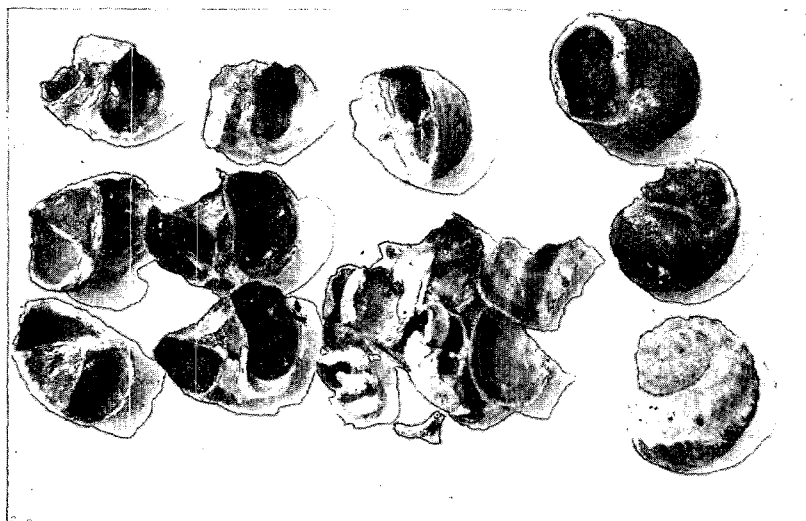


FIGURE 2 — *Amphibola crenata* shells removed from the thrush's anvil. The intact snail at the upper right is fresh and living, the two intact shells below it are chipped and empty, the other seven shells have fractured in the same way. In the centre are some of the larger shell fragments chipped from the apices of the broken shells.

On the evening of 6/2/71, I put twenty living *A. crenata* on the grass in our garden which had been frequented by a thrush, morning and evening, for some weeks. There are no garden snails within this area and it is probable that this bird had been reared this season. On several occasions it approached the snails and merely looked at them, cocking its head on one side but later it picked one up and dropped it quickly giving a little jump. A few minutes later it picked up a second shell and flew a short distance before dropping it. Although the thrush continued to feed in the garden for another 15 minutes it appeared to avoid the place where the mud snails were. When the mud snails were picked from the grass they made a bubbling sound as they retracted, which may have startled the thrush. The mud snails were put out again, two evenings later but the thrush ignored them and the experiment could not be continued as the thrush ceased to visit our garden.

DIFFERENCES BETWEEN MUD SNAILS AND GARDEN SNAILS

What is new about this exploitation of *A. crenata* by thrushes is that the thrushes are feeding on a new species of snail with a harder shell and the mud snails are collected on mudflats, an unusual location for thrushes. (Though New Zealand has such an extensive coastline and it is not unusual to see passerines such as goldfinches, sparrows and starlings foraging on beaches). On three separate occasions I found a shell of the scavenger whelk *Cominella glandiformis* by a

thrush's anvil at Papanui which suggests that the thrushes are experimenting with snail-like objects. Presumably if they can be broken and the contents eaten, that type of shell will be collected again. *Amphibola crenata* is a Pulmonate snail, more closely related to garden snails than most other marine snails, so its soft parts may not taste very different from garden snails. *A. crenata* has been used for human consumption, and I have seen many shells of this species in Maori middens. The shell of the mud snail is much thicker than garden snails and is consequently more difficult to open. Morris 1954⁽⁴⁾ says of thrushes breaking garden snails, "The number of beats required to break open the shell is variable, according to its thickness, a weak shell being smashed in as few as four or five beats." Thrushes must hammer very persistently to break open mud snails. I saw a thrush hammer one such shell forty times, and still not succeed in opening it. I took two intact mud snails and held the shells by the rim and hammered them on a thrush's anvil; the first broke after forty blows and the second after nineteen, but both broke in the same way as shells broken by thrushes. Intact shells were found at anvils with broken shell on several occasions, so shells are sometimes abandoned without being broken.

DISTRIBUTION OF THE HABIT OF THRUSHES EATING MUD SNAILS

It would be interesting to know how widespread is this habit of thrushes feeding on *A. crenata* in New Zealand. As suitable areas for exploiting this food are scattered around the coast and the previous record is about 345 miles from Otago Peninsula, one would suspect that the habit can be developed independently by a few thrushes in different areas, where it may spread by imitation. The well-known habit of tits and other birds of opening milk bottles was spread in areas of England and Europe in this way, as shown by the studies of Fisher and Hinde 1949⁽¹⁾, and 1952⁽²⁾. It is unlikely that the exploitation of mud snails has spread from a single focus, as recorded by Pettersson 1959⁽⁵⁾, for *Daphne* eating by Greenfinches.

I would be very interested to receive further records of this behaviour from other observers in different parts of the country and I would be willing to collate and publish this information as it became available.

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