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LAND SNAILS OF A RESIDENTIAL AREA IN N.W. HERTFORDSHIRE.

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THIS note is based on specimens which were collected whilst I was working at Boxmoor in the N.W. tip of Hertfordshire. The freshwater species and the insects have already been reported on (*The Microscope* **6** (10), 259–263, 1947, and *Ent. Month. Mag.* **85**, 249–253, 1949). The first reference gives a map of part of the area. The areas examined are very small in extent and are situated in a rural residential area. They consist of a meadow bordering a small stream which runs parallel to the Grand Union Canal and a small garden-orchard in Green End Road. It is interesting to see what snails still survive in an area which has been disturbed by man but not irreparably so. The orchard contains beds of asparagus and other vegetables and ornamental plants, together with fruit trees with rough grassland beneath. At one end a large log lies beneath a hawthorn bush. Roads, houses and other more built-up gardens surround the orchard, so that all the fauna is derived from that originally present. At the other end of the orchard are a lodge and converted stables. Altogether 32 species have been discovered and this shows that quite a rich snail fauna can hold out against the activities of man. Dates are given in the following list and also an estimation of the state of growth of the animals. These help to give some idea of the life-histories.

Domestic Species.

Helix aspersa Müller : hibernating on lodge wall together with numerous young ones (25.3.46) ; young active (24.4.46). Some young ones have been observed to be attacked by the ant *Lasius niger* (L.).

Limax flavus L. : common about the lodge and stables, usually under stones during the day, but one half-grown one was active on a hot July afternoon. Always with at least a dozen mites.

No other species were seen on or in the house.

Species seen on roads.

Arion ater L. : two brownish-grey ones seen feeding on a squashed frog (24.10.46).

Helix aspersa Müller : occasionally seen on roads.

Arianta arbustorum (L.) : regularly seen on the path of Collet Road, on the side which is bordered by scrub and is not built up ; juveniles in the spring.

Species seen on railway embankments.

The portion of the main Midland Region line was examined where it forms a border to the meadow ; a mossy patch covering small coal was the most productive (23.3.46).

Cochlicopa lubrica (Müller) : fairly common.

Discus rotundatus (Müller) : fairly common.

Hygromia hispida (L.) : frequent.

H. striolata (Pfeiffer) : scarce under bricks, including one subscalariform individual.
Arianta arbustorum (L.) : one nearly adult.
Retinella nitidula (Draparnaud) : adults and juveniles abundant ; crop contents entirely plant material.
Oxychilus cellarius (Müller) : few dead shells.
O. helveticus (Blum) : scarce—only one seen alive.
Vitrina pellucida (Müller) : few dead shells.

Species living by the stream and on the canal tow-path.

Carychium minimum Müller *s.s.* : juvenile at roots of *Scrophularia aquatica* (21.3.46).
Succinea putris (L.) : juveniles with the last, and also active on fresh *Scrophularia* shoots (2.5.46).
Hygromia hispida (L.) : with *Carychium* ; also a flattened variety with pale body by stream (Oct. 1945).
Ashfordia granulata (Alder) : on marsh plants by the stream (Oct. 1945 and Sept. 1946).
Monacha cantiana (Montagu) : juveniles abundant on the dried leaves of butterbur by canal tow-path (1.4.46 and 17.9.46).
Helix nemoralis L. : a few adults with the last (1.4.46).
H. hortensis Müller : banks of the stream (Oct. 1945).
H. aspersa Müller : with last.
Euconulus fulvus (Müller) : one under plank by the stream (23.7.46).
Zonitoides nitidus (Müller) : two juveniles with last ; crop contents of diatoms and filamentous algae.

Further along the canal in the Berkhamsted direction the following species were found under moss in a scrubby clearing by the tow-path :—

Cecilioides acicula (Müller) : one dead shell.
Cochlicopa lubrica (Müller) : common.
Retinella nitidula (Draparnaud) : one.
R. pura (Alder) : one.
Vitrina pellucida (Müller) : one.

Species occurring in the orchard.

Each time the log was visited all the molluscs beneath it which could be observed were removed.

Vertigo pygmaea (Draparnaud) : under log, 1 (31.10.45) ; 2 (15.5.46) ; 1 (10.7.46) ; 2 (16.7.46) ; 9 (17.7.46) ; 2 (22.7.46) ; 1 (16.8.46).
Columella edentula (Draparnaud) : one adult and one nearly so under the log (16.7.46).
Vallonia excentrica Sterki : frequent in the least disturbed places and also under log (Jan. and Feb.).
V. costata (Müller) : one hibernating in hollow asparagus stem—it had three mites in the umbilicus (23.9.46).
Cochlicopa lubrica (Müller) : Under stone (29.3.46) ; on rubbish heap (6.5.46) ; adults under log (30.10.45 and 1.8.46) ; juveniles and adults under moss (20.11.45).
Punctum pygmaeum (Draparnaud) : in undisturbed parts of orchard.
Arion circumscriptus Johnston : one under log (6.6.46).

A. ater (L.) : a batch of 40 eggs believed to be of this species was found beneath the log (14.11.45).

A. hortensis Férussac : under log (15.2.46 ; 25.3.46 ; 26.6.46) ; after the very cold winter (17.3.47 and 1.4.47).

Helicella caperata (Montagu) : in less disturbed parts of the orchard.

Hygromia hispida (L.) : adult under log (1.4.47).

Retinella nitidula (Draparnaud) : under log (30.10.45 ; 15.2.46) ; one laying eggs (25.3.46) ; two half-grown ones, crop contents included a *Macrobiotus* and bark fibres (5.11.46) ; adults (22.7.46) ; juveniles active (9.4.47).

Oxychilus alliarius (Miller) : under log (15.2.46).

O. cellarius (Müller) : under log, one which had eaten some insect food (15.2.46) ; one with only vascular plant and wood remains in the crop (22.3.46) ; ditto (5.9.46).

Agriolimax reticulatus (Müller) : common under the log (15.2.46 ; 25.3.46 ; 6.6.46 ; 22.7.46), and after the cold winter (17.3.47).

Besides the species listed for the various habitats above, *Monacha cantiana* (Montagu) is common on grass stems and bushes at a height of one or two feet above the ground in most of the hedgerows and allotments. *Oxychilus helveticus* (Blum) (two-thirds grown individuals) were found on moist leaves on allotments (5.11.46).