

museums and a network of collectors in Europe, America, Hawaii and Africa. A nuclear gene, the internal transcribed spacer 2 (ITS2) from the ribosomal gene cluster, will also be sequenced.

Observations of mating behaviour and copulation modi in different morphs of *Limax cf. maximus* Linnaeus 1758

Gerhard Weitmann

No abstract available.

Betaversion of an Access-based database for molecular collection management

Barbara Klee & Isabel Hyman

During our work with sequence data and associated voucher specimens, we have encountered problems in the management of the large datasets generated. This is further complicated by the need to repeat procedures during molecular work, resulting in multiple datasets belonging to one voucher specimen. Datasets such as these cannot be managed easily using spreadsheets and are not catered for by existing collection management databases, so we have developed a Microsoft Access-based database designed for this purpose.

One major benefit of a database is that entries are linked to reduce the need for repeated data entry. Data are stored in tables and can be entered easily using forms. The report function can be used to produce user-specific output, as Word or Excel files. This can be used, for example, in making labels and producing mapping data. Other files or internet-based information can be linked to each entry (for example, links to sequences deposited in GenBank). Another benefit is that it is possible to track the history of each specimen, concerning preservation, molecular work, dissection, determination and any other procedure.

The database is still under construction, so we have new features to implement and new data to add. In the future, we aim to make parts of the database available online. Members of Task-Force-Limax would have password-protected access for data entry and retrieval of unpublished work.

Polychromatism in *Limax cf. alpinus*

René Heim

Colouration has always been considered to be very important in the identification of species of *Limax*, despite common knowledge of the variation existing within species. Within a population there can be several different colour morphs, and differences between juveniles and adults have been observed. However, little is known about how colouration changes during ontogeny.

In this study, individual specimens from a single population of *Limax cf. alpinus* in Glauenberg, Switzerland were photographed at ages ranging from newly hatched to fully grown. The most commonly observed adult colouration consisted of a light brown body with a dorsolateral row of black spots, and a unicolour mantle. The tripartite sole was dark with distinct flecks of pigment on the outer fields, gradually fading towards the pale inner field, with no sharp margin between the regions. Variation in the body colour of the adults ranged from purely white to nearly black and the dorsolateral spots varied in size and degree of fusion. There were considerable changes in the colouration of animals during the growth of a juvenile to adulthood.

This example demonstrates the importance of sampling more widely in a population to include a variety of colour morphs and stages of development. This should allow better understanding of species boundaries, allowing more accurate identification.

Wishes, dreams, fancies and realities in preservation techniques of slugs for scientific collections

Ulrich E. Schnepapat

In the current project we have a huge amount of material coming in from all over the world. If this is to be useful in the years to come, it needs to be preserved with optimal colouration, shape and anatomical structures. In my role as a taxidermist and preservation technician with 40 years experience, I would like to point out some major errors in what most malacologists believe are good preservation techniques.

Old and widely accepted rules should be examined from the perspective of modern chemistry. One aim of preservation is to stop the action of the enzymes pepsine and kathepsine, which have an autolytic function and are responsible for the destruction of collagen, the main protein of skin and many internal organs. This autolytic function is stopped with a fixation chemical such as ethyl alcohol, which gives good results, providing a high concentration is used. During fixation, the preservation fluid is diluted. If 70% ethyl alcohol is used, the actual concentration is reduced to below the critical level of 60%, where tissue maceration starts. A better solution is to use 95% ethyl alcohol for fixation, and to counteract the slow speed of diffusion of ethyl alcohol by injecting it into the body cavity.

For the preservation of colour, it is important to know that the pigmentation is situated in the outermost cell structures of the skin and/or the mucus. These layers are very fragile, and can be easily destroyed if tissue autolysis has started before preservation of the already dead animal. This often happens when animals are killed by drowning.

Many of the common problems in preservation, such as gradual fading or brittle internal organs, are greatly reduced if the initial preservation techniques are good. Storage conditions should also be optimised by storing animals in 75% ethyl alcohol, filling jars to the top with no air bubble (to keep the pH stable) and reducing excessive vibration and exposure to heat and UV radiation.

Collecting and transporting living slugs (Pulmonata: Limacidae)

Barbara Klee & Ulrich Scheppat

Zoologische Staatssammlung München
E-mail: Isabel.Hyman@zsm.mwn.de

Note de la rédaction : La traduction française de cet article est disponible sur le site www.journal-malaco.fr à la rubrique Actualités.

Distribution

Slugs of the genus *Limax* and other Limacidae are common in forests that are not strongly influenced by man, for example in beech- and oak-forests, in natural woods of mountain ranges and in alpine forests. Occasionally *Limax cinereoniger*, *Malacolimax* and *Lehmannia* can be found in old spruce plantations (*Picea abies*). In southern Europe, they can additionally be found in chestnut and cork oak (*Quercus suber*) forests, in Macchia and in old olive tree plantations. In these areas you can be successful in little valleys facing to the north with creeks up to rocky fields (even above the timberline), where the evening dew condenses. *Limax maximus* and *Limacis flavus* can appear in gardens and parks near cities.

Collecting

Turning old wood and stones during the day can be successful sometimes, but the more efficient way is collecting at night after the beginning of complete darkness (normally after 9:30 p.m.) with a headlight or torch. *Limax* is nearly exclusively active at night. You



should pay attention to mushrooms, when there are any in the habitat (look underneath).

Care

To collect slugs and keep them alive, solid plastic boxes are suitable, like lunchboxes, freezing boxes and Tupperware containers, if they can be closed firmly. If you need boxes urgently, you can also use margarine or other food containers. Air holes are really necessary.

You can easily make them with a ticket punch (a tool for punching holes in leather) or drill.

You will need approximately 30 air holes of 2 mm diameter per box. Make the air holes on the side of the box, not on top; this allows the boxes to be stacked without reduction of air supply.

Cover the bottom of the box with wet paper towel. If you want to send the boxes, you can fill them with moss, but this is not mandatory. Do not use other plant material.

If you can not send the animals immediately, you can store them for several days (even weeks) in the fridge or in cool basement rooms. If you keep them more than a few days, you can feed them with small pieces of mushrooms, cucumber, carrots or zucchini. Remove remaining food on the next day!! Depending on the number of animals in one box, paper towel must be replaced or moistened again after 3 to 5 days. Use only unchlorinated water, otherwise slugs will die!

Sending living slugs

In summer, wait for cool weather, if possible. In the meantime keep them in the fridge, if it is too hot to send them. Remove food before sending. Fill space between boxes in one package with crumbled paper or polystyrene packaging.

Please email Barbara.Klee@zsm.mwn.de, Isabel.Hyman@zsm.mwn.de and Enrico.Schwabe@zsm.mwn.de before sending, so that there is someone who is informed about the arrival and can look after the slugs. Please send them just at the beginning of the week so the package will not get stuck over the weekend! Very important animals should be sent "priority" or "express", especially when the weather is hot or there is danger of freezing.

A List of type specimens of land and freshwater molluscs from France present in the national molluscs collection of the Hebrew University of Jerusalem

Henk K. Mienis

National Mollusc Collection, Dept. Evolution, Systematics & Ecology
Hebrew University of Jerusalem, IL-91904 Jerusalem, Israel
E-mail: mienis@netzer.org.il

Abstract – Six samples consisting of type specimens of land and freshwater gastropods based on material originating from localities in France and present in the National Molluscs Collection of The Hebrew University of Jerusalem, Israel, are listed. Five taxa were described by E. Caziot and one by G. Coutagne.

Keywords – Mollusca, Gastropoda, France, type specimens.

Résumé (par la rédaction) – Les spécimens types de 6 taxa nominaux de gastéropodes terrestre et d'eau douce provenant de localités françaises et présents dans la *National Molluscs Collection* de la *Hebrew University* de Jérusalem sont ici listés. Cinq taxa ont été décrits par E. Caziot et un par G. Coutagne.

Mots clefs – Mollusca, Gastropoda, France, spécimens types.

Thirty years ago I published a short list of type specimens of land and freshwater mollusks from France present in the collection of G.S. Coen (Venice), which forms now part of the National Mollusc Collection of the Hebrew University of Jerusalem, Israel (Mienis, 1976). In the meantime several other type samples were located in either the Coen collection or that of the late A. Blok (Rottingdean), which has also been donated to the Hebrew University.

A revised list of this type material is given below. Five taxa were described by E. Caziot and one by G. Coutagne. The samples recorded here from the Coen collection formed once part of the collection of T.di M.A. Monterosato (Palermo).

All the mentioned specimens are considered here syntypes, because additional type material is without doubt present in museum-collections in France.

List of type specimens

Family Hydrobiidae

- *Paludestrina bigugliana* var. *guittoni* Caziot, 1908b: 33.
France, Corsica, Biguglia, HUI 50441/6 syntypes (=Coen 6902).

Family Lymnaeidae

- *Limnaea renoufi* var. *guyardi* Caziot, 1908a: 233, pl. 1, fig. 15.
France, Yonne, Auxerre, HUI 50435/1 syntype (=Coen 1549).

Family Clausiliidae

- *Clausilia andusiensis* Coutagne, 1886: 234.
France, Gard, Anduze, HUI 50434/2 syntypes (=Coen 1527).

Family Hygromiidae and Helicidae

- *Helix albovariegata* Caziot, 1903: 174.
France, Corsica, Bonifacio, HUI 50466/8 (=Coen 502).
- *Helix fertoni* Caziot, 1903: 204, pl. 1, figs. 8-8b.
France, Corsica, Bonifacio, HUI 50467/2 syntypes (=Coen 8511).
- *Helix bonifaciensis* var. *hospes* Caziot, 1903: 225.
France, Corsica, Bonifacio, HUI 50468/2 (=Blok 12249).

References

- Caziot, E. 1903. Étude sur la faune des mollusques vivants terrestres et fluviatiles de l'île de Corse. *Bulletin de la Société d'Histoire Naturelle de Corse*, 22(266-269): 354 pp.
- Caziot, E. 1908a. Catalogue des mollusques terrestres et fluviatiles du Département de l'Yonne, Auxerre. *Bulletin de la Société des Sciences et d'Histoire Naturelle*, 60: 193-278.
- Caziot, E. 1908b. Diagnose d'une nouvelle espèce de *Paludestrina* de l'île de Corse et complément à la faune des mollusques terrestres de cette île. *Bulletin de la Société de Zoologie de France*, 33(3/4): 33-35.
- Coutagne, G. 1886. Description de quelques Clausilies nouvelles de la Faune Française. *Annales de Malacologie*, 2: 229-236.
- Mienis, H. K. 1976. Types de quelques mollusques terrestres et fluviatiles de France dans la collection Coen de l'Hebrew University of Jerusalem. *Elona*, 3: 40-41.