

Difficulties and problems in housing and breeding of earwigs . (Insecta , Dermaptera)

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The latest reports in the previous Phoenix paper on successful breedings should not hide the fact that it very probably are species that are difficult to keep or not . with some species, unfortunately it was only for a breeding or husbandry attempt here would be the following

To mention representatives :

- *Auchenomus heros* Steinmann , 1984
- *Chelidurella mutica* (Kraus , 1886)
- *Euborellia plebeja* (Dohrn , 1863)
- *Euborellia Moesta* (Gene , 1837)
- *Forcipula decolyi decolyi* De Borman , 1900
- *Forficula smyrnensis* Serville , 1839
- *Hypurgus fulvus* Burr , 1911
- *Nesogaster aculeatus* (De Borman , 1900)
- *Pracranopygia siamensis* (Dohrn , 1863)

In most cases, indeed females laid eggs and sometimes also hatched larvae, which then but no complete development conducted , but died before.

Sometimes there are opinions according to which one can grow catchy tunes such as animals (egAs crickets) . That it is not so, I would like to present in this post.

If you want to keep earwigs, some conditions must be clarified and some special this group of animals to be considered before you can even start a breeding.

Habitat, substrate, soil conditions:

If one removes animals from a known habitat, the question of the substrate is easily understood. E.g. the earwig *Labidura riparia* (Pallas, 1773) (Fig. 6 and 7) or the sea beach catchy *Anisolabis maritima* (Bonelli, 1832) (Fig. 27). Both live in waters with different banks texture that a species prefers sandy soil, others stone and gravel.

If the habitat question is not clear, things are more difficult, and then this must be improvised. Of most species of palm fiber substrate or loose soil is assumed to be soil substrate. The substrate should always be slightly moist because of the Earwigs the humidity, both the air and the soil, of great importance for their life opportunities (Günther K. & H. Herter K. 1974).

If the substrate is too dry, it comes to rapid dehydration and can be deadly for the earwigs. Only a few species lay special emphasis on soil conditions such as our forest earwig *Chelidurella guentheri* Galvagni, 1994 strictly rejects the acidic soil (Fig. 17 or 18).

Some species of the families Spongiphoridae here especially the genus *Auchenomus* as well as representatives from the family Apachyidae, have very flat with their physique to the nature of their preferred Habitates out (Fig. 28 and 29). They are found under bark and in the layers of the leaf axils of banana trees. Here you can improvise well with corrugated cardboard pieces or pulp layers. I have made good experience with the representatives of the genera and *Paralabella Chaetospania* with a "landfill" (Fig. 4). Then they put on in the loose moist earth transitions and their brood chambers. These types actually live in the tight wet Tissue layers of banana trees.

Nutrition

Earwigs are generally omnivorous, but some species have evolved over developed their development into carnivores or *Planzenfressern*. In addition, there there are types that act as waste recyclers, here would be particularly the genus *Allostethus* mentioned, which lives in rotting bananas or decayed wood and this decomposes (Fig. 15).

When I get a *Ohrwurm* whose origin, region or habitat unknown is, I test with apple pieces or crushed *Grille* the food type.

Even with fish food, especially dried *Bachelor Krebse* here, I have good results can achieve.

In most cases, the animals choose one of the options, a study

However, the maxilla can provide clearer information. have *Planzenfresser* a *kaukantenähnliche* training, also called *Molarläche*, this is at the *Carnivores* es fro *pärlich* a *usgebildet* (G raik 1 / Fig. 30).

Among the carnivores, most species are hunters as the family *Labiduridae*, this our earwig (*Labidura riparia*) is a good example. He eats everything,

he can overpower a pioneer species in open pits or sand pits. of course
Unfortunately, many of these species also tend to cannibalism. In other families, as
Pygidicranidae there are so -called ambush predator such as endemic to New Guinea
living genus *Tagalina* . The species of this genus have next to a hefty
Pliers also an excellent sense of touch. If a prey in their vicinity , it is
instantly taken with the tongs and overwhelmed (Fig. 3).

In the vegetarians the thing looks a bit different , here is the range of
Food pronounced variation in size. Of the plants is pretty much recovered ,
as fruit, flower parts and leaves. Also be happy living there and aphids
their excretions consumed. Thus, some species even as a beneficial insect
be addressed , such as the Common earwig *Foricula auricularia* Linnaeus,
1758 (Fig. 13) or the bushes catchy *Apterygida media* (hagen bach , 1822)
(Fig. 26). But even here there are species which are related to difficulties in
their diet is . This concerns in particular the members of the genus
Perirrhytus ,
who live in the endemic laurel forest on Madeira. after animal
Retired food in the broadest sense , a wide variety of different parts were
Plants offered , the offered samples but were mostly rejected. Animals
then unfortunately died gradually . Therefore, the idea is suggested that they
might occur as a food specialist only endemic to Madeira
Feeding plants (Fig. 19/ 22 or 23 /24).

Life and development:

Earwigs are actually quite social animals , but upon closer examination of the species
striking that the majority but need some distance from each other . an exception
make some representatives of the genus *Foricula* , here is our very Common
Earwig *Foricula auricularia* and the Mediterranean catchy *Foricula decipiens* genes
1832 to mention . This species sometimes form large communities of sleep to
to 100 animals , under bark or other objects. In stark contrast,

have a representative of the endemic species living in Papua New Guinea Tagalina own territory such as a Pandanusrosette or a banana tree . These animals tolerate no rivals in their area and have individually housed in container (Fig. 5).

Other species I keep in small groups, depending on the type and size of the existing Container, usually 3-6 or 2-3 pieces couples.

No later than when the first females laid eggs, the housemates from the need to Soft container, because the female needs in this situation alone. Small perturbations are tolerated and there are sometimes the change of location of the scrim , but at Time to get the animals stress disorder and begin to devour the eggs (Fig. 10) .

This finding is important because European earwig usually only a scrim produce , even with repeated fertilization are then laid no more eggs (Fig. 8) .

In tropical earwigs the females are capable of at longer intervals until to customize to 3-4 clutches, from which then hatch and larvae.

The production of the fabric is quite versatile and is designed from species to species different.

The majority of ear worms lay their eggs in a brood chamber earthy piled From (fig. 9 or 8). Other species in the genus , for example, menus and Timo Tagalina glue their eggs sometimes lined up at center plan ropes or other objects tight (Fig. 16 or 12). Eggs can also be provided with its own stem, as as in the genus *Diplatys* (Fig. 1). The females of *Apachyus chartaceus* (De haan , 1842) carry their eggs under the post-abdomen around with you . some representatives planzen continued viviparous , such as *Spingolabis hawaiiensis* (De Borman , 1882) or *Chaetospania borneensis* (DuBrony , 1879) , here , the eggs develop in the womb. Just as versatile as the oviposit ion is the larval development in earwigs. except for few exceptions, the larvae need the mother and their brood care for their further development. The duration of care is different from species to species and can be very short to very long. When bushes earwig (*Apterygida media*) remain the Not long larvae in the nest. After all the larvae are fully colored, no later than shortly

before mounting to L2 , they leave the nest and the Association dissolves. the larvae
our congregations earwig (*Foricula auricularia*) remain until 3 stage
under the care of the mother . The first food for the larvae of the forest earwig provides (*Chelidurella guentheri*), however, represents the debilitated females , it is of the
ate their own young of the first larval stage . For predatory species
as the earwig (*Labidura riparia*) or the representatives of the genus *Anisolabis*
Euborellia and leave the larvae in the nest 2. stage , not even prey
to be dried after the maternal instinct and the scramble Rubbed the female again
returns (Figure 11).

Since the development is not known when the majority of the earwig species
keeping and breeding remains always an experiment that many surprises
holds . As with most groups of insects are also in the earwigs
Breeding over generations certain limits . Without a refresh
the genetic material I have in my breedings usually only 3 generations
can achieve. Then the populations usually collapse, with the result
that only males or only females developed , which then also increases
Malformations or molting difficulties had.

Parasites, fungi, dust mites:

Like many other insects are also earwigs like as a host of parasites
used. It looks quite impressive, if for example a stringed worm (*Nematomorpha*)
Leaves a catchy tune . One wonders how such a host to the relatively large
Animal in any place has catchy body (Fig. 14) . However, representatives of the
(*Diptera*) , here is the family *Tachinidae* to call (caterpillars lying down) , close
Earwigs in their host range with a . Parasitize in European earwigs
especially the flying *Ocytata pallipes* (Fallen , 1820) and *Triarthria setipennis* (traps,
1810) . Similarly, earwigs of the genera chalcids *Chalicidoidea* be
and *Pteromalinae* infested (Albouy , v. CAUSSANEL & c . , 1990). *Dibrachys cavus*
(Walker , 1835) is also a pretty catchy known parasite (sold without a rag ,

1939).

But fungi can infect the animals , so it is important that a

Substrate exchange then takes place in the container at least when the substrate to verpilzen begins (Fig. 20 or 21). Here, hidden waterlogging within the substrate , the Be the cause .

About viruses and bacteria is not known at earwigs and therefore nobody is surprised when the animals die and you no plausible explanations indene can .

A particular issue is the mites (Acari) , which mostly with food animals be introduced . Often , these are the flour mite (Acarus siro) or the modernization mite (Tyrophagus putrescentiae) . Do not suck directly on the animals , but their larvae , called nymphs, hiking , animals besiege so , that they eventually become immobile . This siege due to the fact that they as insect Use of transport. But at a mass propagation can also according to their death have , for example when the tracheas were added (Fig. 25). If such a mass attack on , are the limited possibilities to curb . As a first step , the substrate or container should be changed. To minimize, New introduction must also be changed , the feed or to search for alternatives for feeding. For larger and more powerful species from 2cm Length, you can brush off the animals with a strong brush. Is in larvae and smaller species The success, however small, and to be reckoned with defaults.

Another difficult aspect is the **wintering** earwigs . In tropical species is This is not a problem, because they are kept at room temperature. In European species However, diapause plays an important role and becomes a challenge.

Most European species require a winter rest in order to successfully develop. They While live at room temperature, but they eat little and then remain mostly in hiding sitting, or standing motionless somewhere in the tank. Even with prior successful pairing in the spring , the females lay no eggs or larvae will not hatch , and the animals die pretty quickly. Especially in species from the Mediterranean or subtropical are as e.g. *Forficula smyrnensis* or *Forficula decipiens* (Fig. 2) , one would not

suggest that they also need a cold stimulus . In such regions, the winter is usually only briefly ,

but it may well reach freezing temperatures , as well as in countries such as in Bulgaria it can also

lower altitudes well be snow. In such cases, you have a winter for this species

improvise , this could be accomplished in the short term on the container in the refrigerator

Temperatures will be spent between 4-7 ° C . However, this should not happen abruptly , but

a slowly decreasing temperature gradient , to the extent feasible . This could for example so

make : entertainment in the room at 23 ° C for several days in the basement at 10 ° C and then a few days in

Refrigerator at 4-8 ° C. Of course then the animals in reverse order must again

Room temperature can be accommodated.

With our three domestic and common species (*Forficula auricularia* , *Apterygida media* , *Chelidurella*

guentheri) I had free range with very good results in your own garden . When earwig

(*Labidura riparia*) , the cosmopolitan lives , yes, it depends on the region from which the animals

takes the attitude . In Central Europe, the earwig begins, depending on weather conditions , from September -

October with the application of wintering transitions, which can be up to 2 meters deep. From

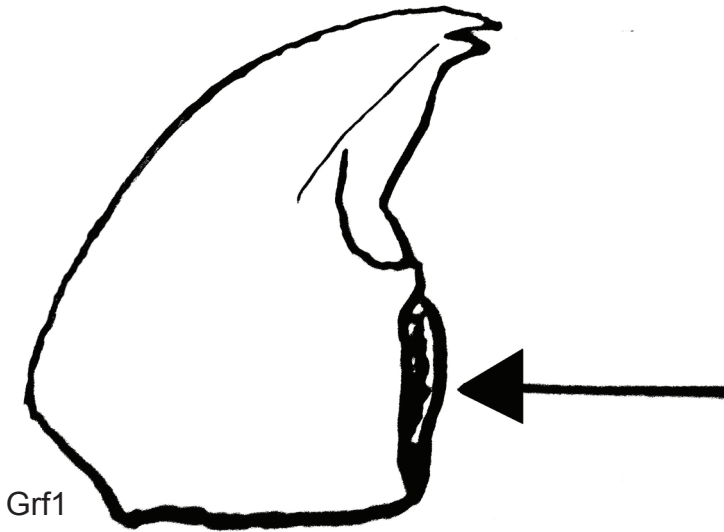
taken from tropical regions, they do not hibernate and can with normal

Room temperature can be maintained.

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Grf1: Grafik einer Oberkieferseite von *Forficula auricularia* LINNAEUS, 1758;
Abb. 1-2; 1:Eigelege von *Dipladys spec.*;2: *Forficula decipiens* GENE, 1832♂



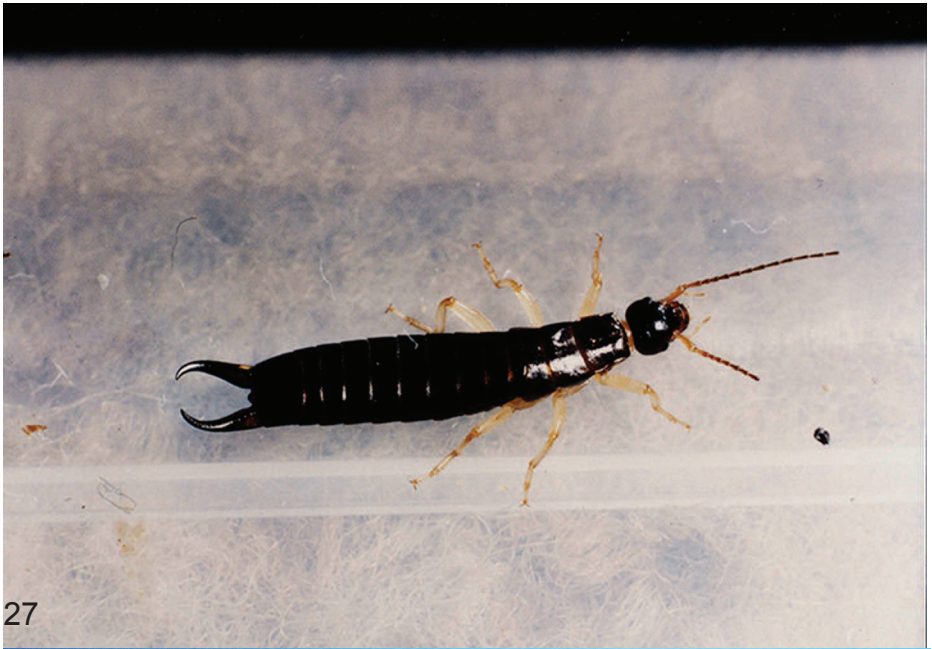
Abb. 3-10; 3: *Tagalina burri* HINCKS 1955 mit Beute; 4: Aufschüttung im Behälter für *Chaetospania*; 5: *Tagalina papua* (DE BORMANN, 1903); 6 und 7: *Labidura riparia* (PALLAS, 1773) ♂; 8: *Chelidurella mutica* ♀ mit Gelege; 9: *Chelisoche morio* (FABRICIUS, 1775) ♀ mit Gelege; 10: *Euborellia moesta* GENE, 1839 ♀ mit Gelege



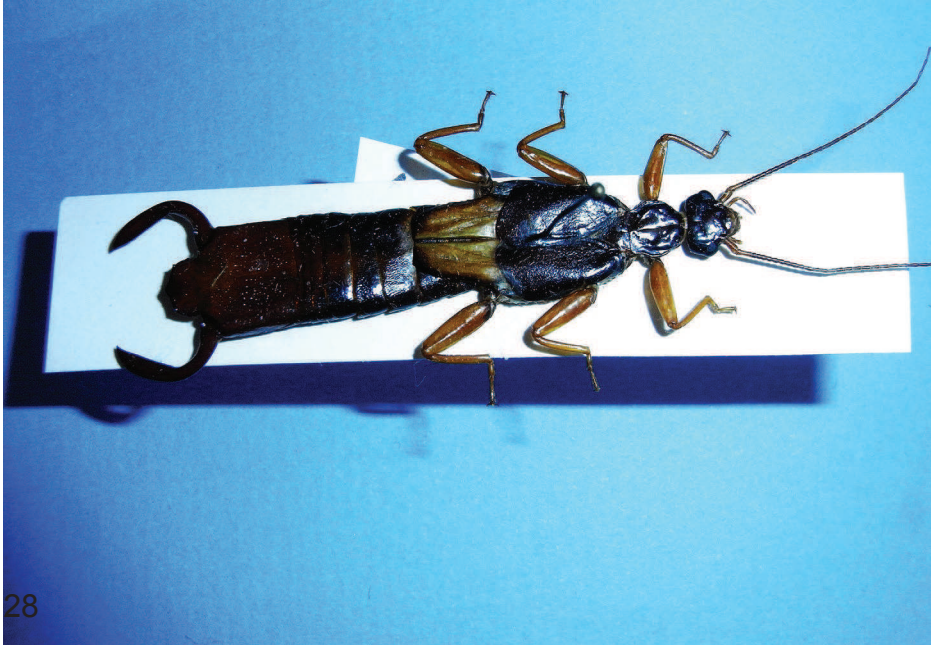
Abb. 11-18; 11: *Euborellia moesta* ♀ mit Larven, 12: Eigelege von *Tagalina burri* auf Stein geklebt, 13: *Forficula auricularia* LINNAEUS, 1758 ♂, 14: Seidenwurm aus einem *Chelisochoes morio*, 15: *Allostetus celebensis* BURR, 1911 ♂, 16: Eigelege *Tagalina papua* auf Deckel, 17: *Chelidurella guentheri* GALVAGNI, 1993



Abb. 18-26; 18: *Chelidurella guentheri* ♂, 19: *Perirrhytus madeirensis* (BORELLI,1908) ♀, 20: Pilzgeflecht im Behälter, 21: Pilzgeflecht im Behälter, 22: *Perirrhytus edentulus* (WOLLASTON,1858) ♂, 23: *Perirrhytus edentulus* ♂, 24: *Perirrhytus edentulus* ♀, 25: *Parapsalis infernalis* BURR,1913 Lave (L5) mit Milben, 26: *Apterygida media* (HAGENBACH,1822) ♀

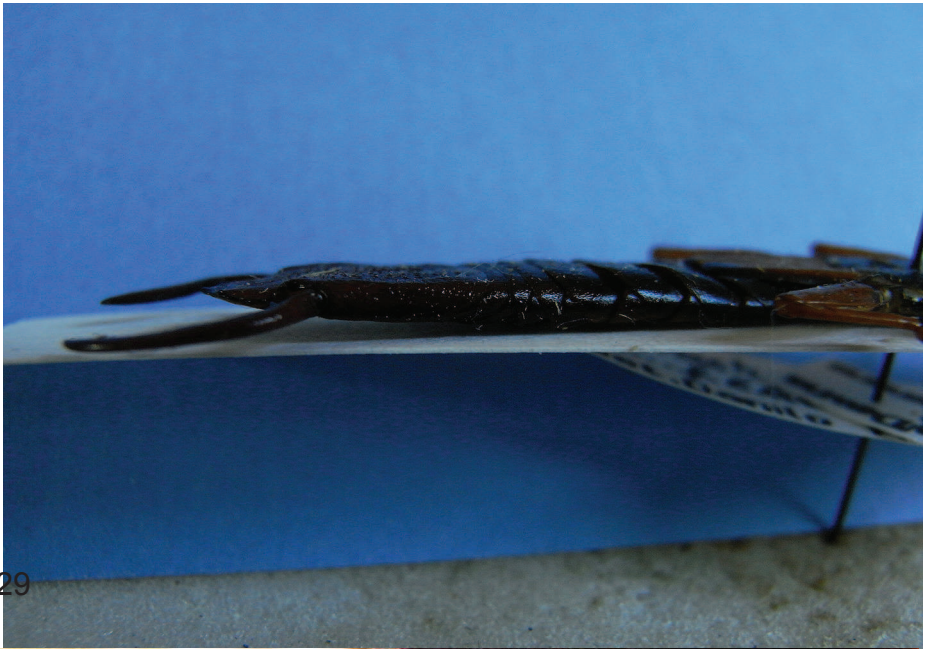


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Abb. 27- 28; 27: Meerstrandohrwurm *Anisolabis maritima* (BONELLI,1832), 28: *Apachys feae* DE BORMANN,1894



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Abb. 29-30; 29: *Apachys feae* ♂ mit flachem Hinterleib, 30: Kopf von *Perirrhytus madeirensis* mit deutlicher Kaukante