

# ***Tale of the Takydromus***

By [Darren Naish](#) | September 14, 2013

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Two fighting male individuals of Japanese grass lizard (*Takydromus tachydromoides*). UPDATE: err, or is that a male and female engaged in courtship? Photo by Materialscentist, licensed under Creative Commons Attribution-Share Alike 3.0 Unported license.

I said a while back that I intended to make some overdue headway into the diversity of lacertid lizards: Lacertidae being the clade that includes many of the more familiar, conventionally ‘lizard-shaped’ lizards of Europe, Asia and Africa. Beleaguered by commitments and absolutely unable to produce anything lengthy for Tet Zoo (and unwilling to repost an old article from the archives), I thought I’d produce a shortish article on a lacertid I haven’t written about before: *Takydromus*... though, seeing as this taxon contains something like 21 species, I’m actually talking about a whole group of lacertids, not a stand-alone singleton. [Image above by [MaterialsScientist](#).]

Actually... about that number of species. There are a few cases where people have reported northern, temperate-climate *Takydromus* taxa from tropical places (example: specimens referred to the Russian-Korean-Chinese species *T. wolteri* have been ‘identified’ in Vietnam), leading some to suggest that the tropical identifications are erroneous, hinting at the existence of additional, cryptic species (Lin *et al.* 2002). Indeed, two such species – previously included within *T. formosanus* – were named from Taiwan in 2008 (Lue & Lin 2008). At the time of writing the newest species is *T. hani*, named this year from Vietnam.



Less than ideal photo of captive *T. sexlineatus*... but check out that tail! Image by Bando26, licensed under Creative Commons Attribution-Share Alike 3.0 Unported license.

In general appearance, these lizards – typically called grass lizards or oriental racers – are greenish or brownish, have a distinctly depressed head and a really long tail. That tail can be as much as five times as long as the combined length of the head, neck and body. This means that the centre of gravity is placed well back, a fact which allows for some mean acrobatic feats (read on). The keels on the large, plate-like dorsal scales form continuous longitudinal rows in many species. Many details of the scalation in *Takydromus* are unusual and unique within lacertids (Arnold *et al.* 2007).



Another Japanese grass lizard (*T. tachydromoides*) (this species was also reported in 1958 from South Korea); photo by KENPEI, licensed under Creative Commons Attribution-Share Alike 3.0 Unported license.

If you know squamates, you'll know that hemipenis structure is important in working out how species might be related to another. Surprise surprise, *Takydromus* has weird hemipenes: the lobes at the tips are unusually thick-walled and – so far as we know – the hemipenes don't change shape much across the seasons. Oh yeah, did I say that squamate hemipenes normally change in size and shape according to season? As you might predict, they are biggest and most elaborately ornamented during the breeding season.



Sikkim grass lizard (*T. sikkimensis*) specimen figured by Bhupathy et al. (2009). This specimen (discovered in 2006) verified the existence of a species first named in 1888 but mostly regarded in recent decades as synonymous with *T. sexlineatus*. In this species, the tail is 'only' 306% SVL.



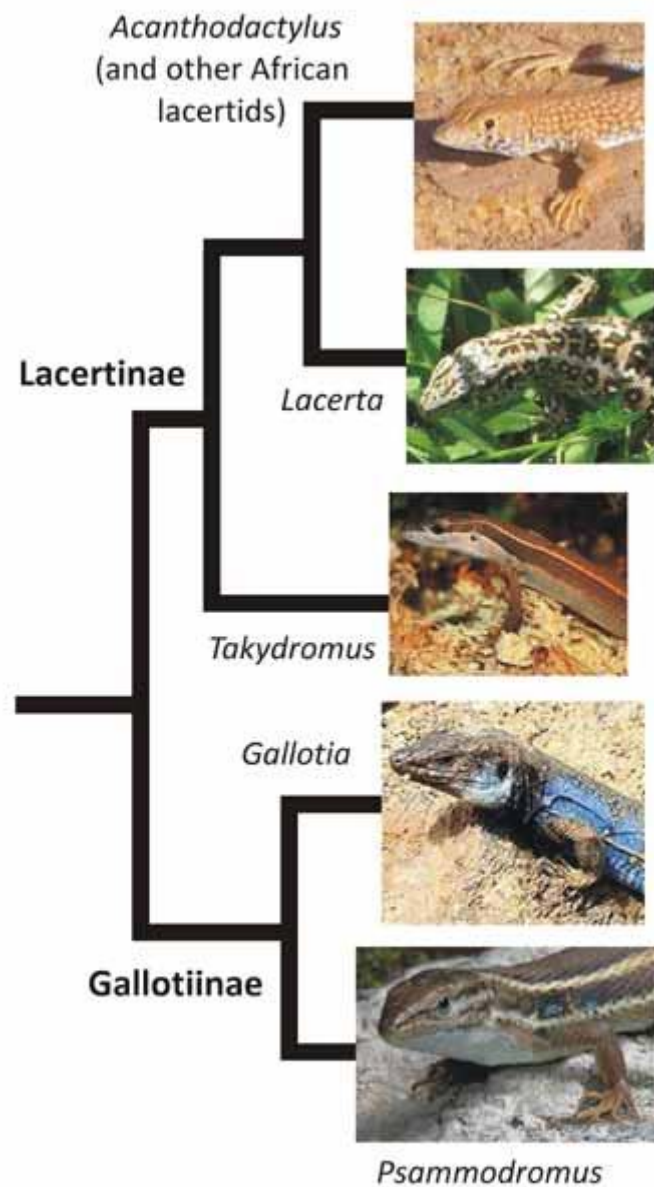
*Takydromus* species occur across eastern Asia, from Japan in the north down to Sumatra and Java in the south. About half of all species inhabit islands along the Pacific margin of Asia, including Taiwan, Japan and the Ryukyu Islands. This distribution means that there are species of humid tropical climates, cool temperate ones and everything in between. The high island-endemicity of the group also makes them potentially vulnerable to the sorts of anthropogenic problems associated with being restricted to islands (to my knowledge, little is known of the conservation status of these lizards, nor of how vulnerable they might be to extinction risk).

Some *Takydromus* species are forest-dwelling lizards while others occur in open habitats and show a preference for climbing among tall grasses. In fact, some are mostly ground-dwellers (e.g., *T. amurensis* and *T. sylvaticus*) while others are highly agile, acrobatic climbers that wind their tails around branches or grass blades when climbing. The more proficient of the climbers (like *T. sexlineatus* and *T. dorsalis*) are able to project the body stiffly outward from the object they're climbing, the forelimbs laid back against the flanks (Arnold 1997). Bipedal standing, again with the forelimbs flat against the body, is practised in the longer-tailed species (like *T. sexlineatus*) when they're trying to catch airborne or elevated prey. Arnold (1997) described this pose as 'penguin-like'. He also suggested that the large, continuously overlapping dorsal and ventral scales might help provide stiffness for the body when the animals stand in this pose.



Female *T. sexlineatus*; image by Acapella, licensed under Creative Commons Attribution-Share Alike 3.0 Unported license.

One of the most interesting things about these lizards is that they have tricuspid teeth at the back of the jaws (a feature that, elsewhere within Lacertidae, is also present in *Gallotia* and the Miocene taxon *Miolacerta*... wow, imaginative name on that one). All *Takydromus* species are arthropod predators and all (so far as we know) are oviparous.



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>Massively< simplified lacertid phylogeny, showing early divergence into Gallotiinae and Lacertinae, and with *Takydromus* being the sister-taxon to the rest of Lacertinae. *Acanthodactylus* by Richard Hing, *Takydromus* by Acapella, *Gallotia* by Petermann, *Psammmodromus* by Wolfgang Wüster.

As for where *Takydromus* fits within Lacertidae, a general similarity with *Zootoca vivipara* – the Palearctic Viviparous lizard – has led to the idea that they're somewhere within the lacertid clade Lacertinae, and close to *Zootoca* (Arnold 1989). Exactly this relationship was recovered by Arnold *et al.* (2007) in their morphology-based analysis, though things were rather less tidy in the molecular ones: they preferred topologies where *Takydromus* is the sister-taxon of all other lacertines excepting the members of Eremiadini (ah yes, them. Another time, ok?). Fu (1998, 2000) found *Takydromus* to be the sister-taxon to all other lacertines. There's no definite fossil record for *Takydromus* but *Miolacerta* might be a close relative or stem-member of the lineage (Arnold *et al.* 2007). It's inferred that *Takydromus* descends from an ancestor that moved east from the more westerly area where lacertids mostly evolved, and then diversified extensively in eastern Asia and along the Pacific margin.

Arnold (1997) provided a wealth of data on the anatomy of the *Takydromus* species and produced a morphology-based phylogenetic hypothesis for the clade. As is typical for species that contain numerous species, there have been suggestions from time to time that certain of said species should get their own genera, so both *Platyplacopus* Boulenger, 1917 and *Apeltonotus* Boulenger, 1917 are today regarded as synonyms of *Takydromus*. Arnold (1997) found *Takydromus* to group into two main clades and he hence suggested that the name *Platyplacopus* could be applied to the clade that includes its type species (*T. keunei* from southern China, Hainan and Taiwan). However, molecular phylogenies have not supported this tidy division and *Platyplacopus* now seems to be polyphyletic (Lin *et al.* 2002, Ota *et al.* 2002). [Image below by [TANAKA Juuyoh.](#)]



Another view of another Japanese grass lizard (*T. tachydromoides*). Image by TANAKA Juuyoh, licensed under Creative Commons Attribution 2.0 Generic license.



So, for now, I can rest, secure in the knowledge that I've written about another group of lacertids at Tet Zoo.  
Only another 15-20 major lineages to go.

For previous Tet Zoo articles on lacertids, see...

[The Great Goswell Copse \*Zootoca\*](#)

[The New Forest Reptile Centre](#)

[It's high time you were told about \*Psammodromus\*](#)

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