

## Height-seeking habits of the Smooth Newt, *Lissotriton vulgaris* – a neglected behavioural trait

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**Abstract.** 13 cases of terrestrial height-seeking or climbing habits in *Lissotriton vulgaris* are reported, apparently for the first time. This behaviour seems to be unknown in all other Palearctic salamandrid newt species. 12 observations were made from throughout Denmark and one from Germany, mainly during the terrestrial phase. The observations involved males, females and subadults in a wide variety of terrestrial habitats and microhabitats during the entire active season from February through October. The majority of observations were made at night or dusk, however, some were made in daylight. Most newts were fully exposed whereas a few were concealed. Particularly interesting was an observation made in mild weather in late winter when a male was seen climbing the vertical wooden outer wall of a house, approaching a lighted lamp farther up. The purpose was apparently to catch invertebrates, which were attracted by the light. It is considered likely that height-seeking newts are generally foraging when they are active and exposed. The fact that *L. vulgaris* is sometimes observed at elevated hiding places indicates that microhabitats above ground level are utilised regularly albeit much more rarely than on the ground. Additionally, one case of limited height-seeking in *Triturus cristatus* is reported.

**Key words.** Amphibia, Caudata, Salamandridae, *Lissotriton vulgaris*, *Triturus cristatus*, height-seeking, climbing, scansorial, terrestrial habitat, height, behaviour, Denmark.

### Klettergewohnheiten des Teichmolchs, *Lissotriton vulgaris* – eine unentdeckte Verhaltensweise

**Zusammenfassung.** Von 13 Fällen ungewöhnlicher Klettergewohnheiten des Teichmolches, *Lissotriton vulgaris* wird anscheinend zum ersten Mal berichtet. Das Verhalten scheint auch von allen anderen paläarktischen Vertretern der Wassermolche aus der Familie der Salamandriden unbekannt zu sein. 12 Beobachtungen stammen aus Dänemark und eine aus Deutschland, hauptsächlich während der Landphase gemacht. Die Beobachtungen betrafen Männchen, Weibchen und Subadulte und sie vertreten ein weites Spektrum von Landhabitaten und Mikrohabitaten. Sie fanden während der gesamten Aktivitätsphase von Februar bis Oktober statt. Die Mehrheit von Beobachtungen erfolgte nachts oder in der Dämmerung, nur wenige fallen auf die Tageszeit. Die meisten Molche bewegten sich völlig frei, nur einige kletterten im Verborgenen. Besonders interessant war eine Beobachtung aus dem Spätwinter mit milden Temperaturen, als ein Männchen die senkrechte hölzerne Außenwand eines Hauses in Richtung einer leuchtenden Lampe emporkletterte, vermutlich um wirbellose Tiere, die durch die Lampe angelockt wurden, zu erbeuten. Es wird als wahrscheinlich betrachtet, dass das Klettern mit zum Verhaltensinventar aktiver Molche gehört. *Lissotriton vulgaris* scheint hoch gelegene Unterschlupfe regelmäßig aufzusuchen, obgleich sie viel seltener genutzt werden als die auf dem Boden. Von einer Beobachtung eines Höhe aufsuchenden (kletternden) Kammmolches, *Triturus cristatus* wird weiterhin berichtet.

**Schlagwörter.** Amphibia, Caudata, Salamandridae, *Lissotriton vulgaris*, *Triturus cristatus*, Aufenthalt in Höhen, Klettern, Landhabitat, Verhalten, Dänemark.

### Introduction

*Lissotriton vulgaris* (LINNAEUS, 1758) is an extremely variable species in several ways. Taxonomically it is polytypic and polymorphic and as a consequence classified into several subspecies. It has even been suggested to elevate a number of subspecies to species level, i.e. *graecus*, *kosswigi*, *lantzi*, *meridionalis* and *schmidtleri* or *schmidtlerorum* (DUBOIS & RAFFAELLI 2009), but this was met with some disagreement. SPEYBROECK et al. (2010) consider *graecus* and *meridionalis* conspecific with *L. vulgaris*. Similar open questions about their systematic status also apply to the three other taxa (GLANDT 2010).

Its geographical range is the largest among all Palearctic salamandrid newts. Towards the north, *L. vulgaris*

s.l. reaches latitude 66° N in Norway, and on the southernmost tips of mainland Greece it lives in the southern parts of the Peloponnesus to around latitude 36-37° N. On a west-east axis (measured at latitude 53° N), it occurs over a stretch of 7,300-7,400 km from Ireland in the west to the Krasnoyarsk region in eastern Siberia, Russia, in the east (KUZMIN 1999, BOUR et al. 2002, SCHMIDTLER & FRANZEN 2004).

In terms of natural history, *L. vulgaris* is adapted to a wide variety of ecological environments. It occurs from sea level to an altitude of 2,150 m in the eastern Alps and 2,300 m in the northern Caucasus. The habitats are extremely diverse, as they commonly comprise completely urbanised districts and areas of intensive agriculture. In southern Greece, the taxon *graecus* even inhabits scorched-dry maquis (BOUR et al. 2002). During its ter-

restrial phase, the nominate subspecies has been found in large numbers in a hot and dry rocky environment far from water bodies in eastern Germany (NÖLLERT et al. 2010). This species is apparently better adapted to diurnal activity during its terrestrial phase than *Ichthyosaura alpestris* and *Triturus cristatus* (HIMSTEDT 1971). All in all, *L. vulgaris* s.l. may well be the most ecologically diverse and adaptable Palaearctic urodelan amphibian.

This paper deals with height-seeking or climbing habits of *L. vulgaris*, by which it ascends to elevated objects such as vegetation. This behaviour has been very much neglected in the comprehensive literature about this species, and possibly constitutes a novel behavioural trait. Most observations originate from Denmark where *L. vulgaris* is abundant (BRINGSØE & FOG 2012)

### Material and methods

The basis of this paper is four observations of height-seeking *L. vulgaris*, which were made by the author in Denmark. They were recorded accidentally during field trips and are supported by photographic evidence. For photographing the newts, a Canon PowerShot S50 camera was used in 2007 and a Canon 7D in the three instances recorded in 2010 and 2011. The newts had not been touched and if a newt was handled subsequently, it was released after a few minutes.

Furthermore, eight other cases with important unpublished information, also in anecdotal form, from other observers were included in my survey. Six of the cases from Denmark were conveyed to me by contacts at [www.fugleognatur.dk](http://www.fugleognatur.dk) (Danmarks Fugle og Natur, meaning “Birds and Nature of Denmark”), which is a major Danish natural history web portal. One additional case from Germany was included.

### Observations

#### a. Own observations

On four occasions, I observed during field trips within Denmark and photographed *Lissotriton vulgaris* climbing vegetation on land. I will report on and illustrate these cases in chronological order.

#### A1.

Observer: HENRIK BRINGSØE

Locality: Køge, eastern Zealand, eastern Denmark. Locality coordinates: 55° 27' 45" N, 12° 09' 33" E.

Date and time: 13 October 2007 at 11:55-12:30 h.

Habitat: Open deciduous forest. Approx. 300 m from the nearest breeding pond.

Observation: One adult male (terrestrial phase) was discovered having climbed an oak tree (Pedunculate Oak, *Quercus robur*) to a height of approx. 40-50 cm above the ground. It was sunny weather and the newt was observed in a sunny spot on the trunk. As I was taking the photographs, it descended 15-20 cm (Fig. 1).



Fig. 1: A male has ascended an oak tree to a height of approx. 40-50 cm above the ground in autumn. Observation A1. / Ein Männchen hat eine Eiche bis auf eine Höhe von 40-50 cm erklommen. Beobachtung A1. Photo/Foto: BRINGSØE

#### A2.

Observer: HENRIK BRINGSØE

Locality: Battrupholt near Nimtofte, Djursland, eastern Jutland, western Denmark. Locality coordinates: 56° 25' 41" N, 10° 34' 04" E.

Date and time: 20 August 2010 at 23:45-23:55 h.

Habitat: Open sandy area with low vegetation (grasses and herbs). Approx. 100 m from the nearest breeding pond.

Observation: During a rainy night, one subadult female (terrestrial phase) was observed on a leaf of a plant (probably dock, *Rumex* sp.) at a height of approx. 40 cm above the ground (Fig. 2).



Fig. 2: A subadult female on a leaf at a height of approx. 40 cm above the ground during a rainy night in late August. Observation A2. / Ein subadultes Weibchen auf einem Blatt in einer Höhe von ca. 40 cm an einer regnerischen Nacht Ende August. Beobachtung A2. Photo/Foto: BRINGSØE.





**A3.**

Observer: HENRIK BRINGSØE

Locality: Mols Laboratory, Djursland, eastern Jutland, western Denmark. Locality coordinates: 56° 13' 55" N, 10° 34' 27" E.

Date and time: 22 August 2010 at 8:55-9:05 h.

Habitat: Garden near a building in open land of the Mols National Park. Approx. 100 m from the nearest breeding pond.

Observation: As several people were gathered around a large Ash (*Fraxinus excelsior*) in order to photograph insects, one adult male *L. vulgaris* (terrestrial phase) was noted on the bark of a tree at a height of 60-80 cm above the ground. The weather was cloudy. See Figs. 3-4.

Fig. 3: A male climbing an ash tree at a height of 60-80 cm in daylight during a cloudy morning in late August. See also Fig. 4. Observation A3. / Ein Männchen klettert an einer Esche 60-80 cm Höhe bei Tageslicht an einem bewölkten Morgen Ende August. Beobachtung A3. Photo/Foto: BRINGSØE.



Fig. 4: This photo illustrates the circumstances under which the male depicted in Fig. 3 was observed on a tree at a height of 60-80 cm. A large group of people were photographing insects on a tree when the author discovered the newt. The author is seen sitting on the ground close to the trunk. Observation A3. / Dieses Foto zeigt die Umstände, unter denen das in Abb. 3 dargestellte Männchen an dem Baum in 60-80 cm Höhe gefunden wurde. Eine große Gruppe von Leuten fotografierte Insekten am Baum als der Autor den Molch fand. Der Autor sitzt auf dem Boden am Stamm. Photo/Foto: MIKKELSEN.



**A4.**

Observer: HENRIK BRINGSØE

Locality: Køge, eastern Zealand, eastern Denmark. Locality coordinates: 55° 27' 28" N, 12° 08' 28" E.

Date and time: 2 April 2011 at hours 20:30-20:40.

Habitat: Pond at the edge of a deciduous forest.

Observation: One adult female (aquatic phase) was spotted in the top stratum of some dead rush plants (*Juncus conglomeratus* and *J. effusus*) above the water surface (and ground) at the bank. Height above ground and water approx. 40 cm (Fig. 5).



Fig. 5: A female in the aquatic phase was seen climbing in the top reaches of dead rush plants on the bank of a breeding pond at a height of approx. 40 cm at night in early April. Observation A4. / Anfang April wurde nachts ein Weibchen in der aquatischen Phase auf abgestorbenen Binsen in einer Höhe von ca. 40 cm am Ufer des Laichgewässers gesehen. Beobachtung A4. Photo/Foto: BRINGSØE.

**b. Observations made by other naturalists**

In addition to my own four observations, nine more observations on the height-seeking habits of *L. vulgaris* were made by other naturalists, mainly in Denmark. All of these have likewise remained unpublished. They are listed here in chronological order as well.

**B5.**

Observer: STEFFEN KJELDGAARD

Locality: The Danish island Anholt in the sea of Kattegat.

Date: In the early 1980es, probably in August or September. Habitat: Open sandy area near dunes. Marshes and swamps within a distance of a few hundred metres.

Observation: The observer was busy cleaning mushrooms (Orange Birch Bolete, *Leccinum versipelle*), which he had collected at the site during the day. Through a crack in the pores of the underside of one mushroom he noticed a female *L. vulgaris* sheltering in a cavity inside the fungal fruiting body! He judged that the newt was trapped and would be unable to come out. However, it is

hard to envisage any other scenario than the newt having deliberately climbed the mushroom and entered the cavity and that it would have been able to exit the cavity if it wanted to. *L. versipelle* grows to a height of approx. 20-25 cm.

**B6.**

Observer: FREDE MØRCH

Locality: Ålsgårde, north coast of Zealand, eastern Denmark.

Date and time: Around 1996-1999, late summer, at night. Habitat: Scrub vegetation of Lilac (*Syringa vulgaris*) and Small Balsam (*Impatiens parviflora*) in a garden, approx. 5 m from a small pond.

Observation: One male (terrestrial phase) was seen in the process of climbing a thin vertical branch of a shrub at a height of 30-40 cm.

**B7.**

Observer: SUNE OBSSEN

Locality: Stenløse, west of Copenhagen, Zealand, eastern Denmark.

Date and time: March and September/October from 2005 to 2007.

Habitat: Garden. 50-60 m from a small pond, 200-250 m from a larger pond.

Observation: On two occasions, individuals of *L. vulgaris* (at least three each) were found under pieces of wood in woodpiles at a height of approx. 50 cm above the ground. One *Triturus cristatus* was found under a piece of wood under similar circumstances once, but only at a height of approx. 30 cm. All newts were in their terrestrial phase and were found during their active season.

**B8.**

Observer: LARS THOMAS

Locality: Ganløse, northwest of Copenhagen, Zealand, eastern Denmark.

Date and time: 14 May 2006 at approx. 20:00 h.

Habitat: Growth of alder (*Alnus glutinosa*) near a large pond.

Observation: One adult *L. vulgaris* was observed on a branch very close to the trunk of an alder at a height of approx. 180 cm above the ground. It did not move.

**B9.**

Observer: STIG MADSEN

Locality: Jægerborg Hegn, north of Copenhagen, Zealand, eastern Denmark.

Date and time: 1 October 2006 at approx. 18:30 h.

Habitat: Open deciduous forest.

Observation: One subadult female *L. vulgaris* was noticed on a portion of a fallen log overgrown with moss at a height of approx. 80-90 cm above the ground.

**B10.**

Observer: MORTEN D. D. HANSEN

Locality: Mols Laboratory, Djursland, eastern Jutland, western Denmark.

Date and time: Around late September 2007 at night.

Habitat: Scrub vegetation of oak.

Observation: One adult *L. vulgaris* was noticed on an oak tree overgrown with moss at a height of approx. 100 cm above the ground. The weather was mild and misty and there were many snails, spiders and insects on the trees. The newt did not move as the observer shone the light on it.

#### B11.

Observer: LARS SØJBERG MADSEN

Locality: Randbøl, southern part of central Jutland, western Denmark.

Date and time: 8 February 2008 at 22:40 h.

Habitat: House with garden in a village.

Observation: One adult male was actively climbing the vertical wooden outer wall of a house. When it was spotted, it had reached a height of approx. 120 cm above the ground. There was a lighted lamp above the newt at a height of approx. 200 cm. In spite of it still being winter, the weather was mild. On that date, the average day temperature in that part of Jutland was +10 °C and the average night temperature +3 °C. A few invertebrates were observed around the lamp. It is very likely that the newt was climbing there to catch them (Fig. 6).

#### B12.

Observer: RUNE STEGMANN HANSEN

Locality: Køge, eastern Zealand, eastern Denmark.

Date and time: 14 September 2008 at 14:45 h.

Habitat: Mixed forest.

Observation: One adult male was found under the bark of a dead spruce which was still standing upright. Height above the ground was 100-150 cm.

#### B13.

Observer: WOLF-RÜDIGER GROSSE

Locality: Halle (Saale), eastern Germany.

Date and time: September 2010, in daytime.

Habitat: Slope of a valley with farmland and meadows. This is the main habitat as described by NÖLLERT et al. (2010).

Observation: One adult male *L. vulgaris* was observed climbing a wall of porphyry rock to a height of 80-100 cm. The observer speculated that the newt might have been searching invertebrate prey or trying to find a damp place to shelter in.

### Discussion

There were 12 observations of height-seeking *L. vulgaris* in Denmark, well dispersed throughout the country, i.e. seven on Zealand (the largest island), four in Jutland (the peninsula covering the largest area), and one on the small remote northeastern island of Anholt. One observation was made in Germany. Most individuals



Fig. 6: A male climbing the vertical wooden outer wall of a house at a height of approx. 120 cm. A lighted lamp well above the newt attracted invertebrates. Most probably the newt would have climbed even higher in order to access the invertebrates. Observation B11. / Ein Männchen wurde beim Erklettern einer senkrechten hölzernen Außenwand eines Hauses in einer Höhe von ca. 120 cm beobachtet. Eine leuchtende Lampe oberhalb lockte Invertebraten an. Vermutlich wollte der Molch dorthin klettern, um Futtertiere zu erbeuten. Beobachtung B 11. Photo/Foto: MADSEN.

were adults, but there were also a few subadults. Males as well as females were involved. Climbing or height-seeking generally occurred during the newts' terrestrial phase, however, in one case it was observed in the aquatic phase (A4), probably during spring migration. There was a bias in favour of observations of active newts at night or dusk whereas fewer individuals were observed during the day. The newts were climbing a wide variety of objects, but mostly plants. Half of the cases comprised truly arboreal behaviour as they involved the climbing on woody plants. In a majority of instances, the newts were fully exposed when they were spotted, whereas two newts were found in concealed situations (Table 1). Furthermore, the height-seeking newts were found active in various weather conditions, except hot sunny weather, very windy conditions and frost, i.e., they were recorded in weather that is typical for terrestrial activity in this species. Height-seeking activities in the wild were recorded from throughout their active season from February through October.

Height-seeking was observed once in *Triturus cristatus* (B7), but only to a limited extent (height of approx. 30 cm, half-way up a woodpile).

Tab. 1: Summary of the 13 observations of height-seeking *Lissotriton vulgaris* relative to their individual and habitat parameters. / Zusammenstellung der 13 Beobachtungen kletternder *Lissotriton vulgaris* im Bezug zu verschiedenen Individual- und Habitatparametern.

Geography	Zealand	Jutland	Anholt	Germany
	7	4	1	1

  

Age	Adult	Subadult
	11	2

  

Sex	Male	Female	Not recorded
	6	4	3

  

Phase	Terrestrial	Aquatic
	12	1

  

Time of day	Day	Dusk	Night	Inactive (concealed)
	3	2	5	3

  

Exposure	Exposed	Concealed
	10	3

  

Microhabitat	Trunk or branch	Leaf	Wooden wall	Woodpile	Rock wall	Mushroom
	7	2	1	1	1	1

  

Height above ground	Mean $\pm$ SD, n = 13	Range
	77 $\pm$ 45.7 cm	20-180 cm

Although the biology of *Lissotriton vulgaris* has been studied extensively (see, e.g., SCHMIDTLER & FRANZEN 2004, THIESMEIER et al. 2011), I have been unable to find any literature on individuals climbing vegetation or other elevated objects, except when they encounter man-made obstacles in the form of pitfall traps or drift fences (see below). A wide variety of terrestrial habitats have been described, but information about microhabitat use during the terrestrial phase focuses on surface-related and fossorial activities as well as hiding places at ground level that are used during the day (e.g., CABELLA et al. 2001, SCHMIDTLER & FRANZEN 2004, NÖLLERT et al. 2010, THIESMEIER et al. 2011). Behavioural studies of *L. vulgaris* are generally limited to studies of reproductive biology whereas other aspects of behaviour are rarely dealt with. To a lesser extent, spatial orientation, movements and homing behaviour have been investigated (CZELOTH 1931, GRIFFITHS 1984, BLAB 1986).

Overall, numerous detailed publications on *L. vulgaris* do not specifically mention at which height above the ground an individual leads its active life during the terrestrial phase, but it is apparently taken for granted that these newts do not climb. HIMSTEDT (1971) even described *L. vulgaris* (along with *Ichthyosaura alpestris* and *T. cristatus*) as being “clumsy” on land, which does not agree with my observations. However, field workers who catch amphibians in pitfall traps are often aware of

the ability of newts to climb branches: In order to enable non-target species such as rodents and small mustelids to escape from the trap, a small branch may be fixed nearly vertically over its entire height on the inside of the trap so that they can climb it. It was found that newts may then also climb the branch and escape (SCHÄFER & KNEITZ 1993, BOYE & MEINIG 1997). Therefore, a length of string should be used to enable animals other than amphibians to exit the trap. Moreover, it is well known from work with drift fences that great care is needed to make the fences newt-proof, as newts are here considered excellent climbers (e.g., VON LINDEINER 1992, BEEBEE 1996).

In southern Germany, LORENZ & FRANZEN (1996) observed *L. vulgaris* larvae in a water-filled tree hole at the base of a beech, roughly 10 cm above the ground. It may be an indication of this species' affiliation with environments around trees slightly above ground level although it does not provide any evidence of the truly arboreal behaviour that has been presented in several cases in this paper.

In total, the 13 new cases of scansorial habits, numbered A1-B13 suggest that this trait is not at all uncommon in *L. vulgaris*. Apart from one observation in Germany, it is striking that this trait has only been recorded in Denmark whereas it is apparently unknown from the rest of the immense distribution range of this spe-



cies. Why has this behaviour generally gone unnoticed? In order to detect this habit, one will have to search in places above ground level that are not usually associated with amphibian activity, except for tree frogs of the genus *Hyla* which are arboreal. This may be one important reason why six of the nine observations made by others than the author have been made by naturalists without particular herpetological interest while only three have been made by true herpetologists (W.-R. GROSSE, R.S. HANSEN and S. OBSER). I see no reason why this kind of behaviour should be restricted to Denmark and neighbouring countries.

The observations appear to involve males and females to an equal extent. In a 24 hour-cycle, the observations also fit in the expected overall activity pattern of the terrestrial newts, although the three observations made during the day are contrary to HIMSTEDT's (1971) observations under laboratory conditions that lead him to conclude that terrestrial *L. vulgaris* are only active in darkness and twilight. While I have not investigated the habitats of the 13 observations in the wild systematically, they appear to represent the general terrestrial habitat selection of *L. vulgaris* very well. The fact that 10 out of 13 observations were made when the newts were fully exposed and only three were made when they were concealed, does not necessarily imply that *L. vulgaris* rarely hides in elevated situations. It is probably considerably easier to detect newts in these places when they are not concealed, and they may actually often use elevated hiding places with appropriate microclimates without being noticed.

The purpose of climbing elevated objects during the terrestrial phase is not clear. In one case, a newt climbed a wooden wall, approaching a lighted lamp farther up the wall (B11, Fig. 6). This is a typical behaviour of arboreal species that habitually catch invertebrates near lamps at night, and appears to be a very likely explanation for case B11 as well. In all the other cases, the height-seeking behaviour of *L. vulgaris* might also have been associated with foraging. There are indications that the main purpose of activity during the terrestrial phase could be foraging (HIMSTEDT 1971), except when it takes place in connection with the three annual migrations to and from breeding ponds (spring, summer and autumn, as outlined by BELL 1977).

In one case (A1, Fig. 1), one adult male was observed in a sun-exposed situation in October. This could be interpreted as basking under cool conditions. An alternative is that it might have been hunting invertebrates that were attracted to sunny places (for basking) in autumn.

The fact that one female in the aquatic phase climbed a plant near the bank in early April (A4, Fig. 5) could possibly be related to selection of breeding habitat in line with LORENZ & FRANZEN (1996) who found that *L. vulgaris* was breeding in a slightly elevated, small water body in a tree trunk. It is not unusual for *L. vulgaris* to temporarily leave the water during the breeding season, as individuals may cross land bridges and move 10 m or

more, even though most newts only use one pond during the aquatic period (DOLMEN 1981, GRIFFITHS 1984).

Basically the only widespread Palaearctic amphibian group that uses microhabitats well above ground level are the treefrogs of the genus *Hyla*. Elevated microhabitats may therefore offer *L. vulgaris* food resources that are only exploited to a limited extent by competitors although such places are inhabited by a number of larger arboreal carnivorous invertebrates.

It is difficult to present a straight-forward explanation for the trend of utilising elevated hiding places. However, the observations made may reflect that *L. vulgaris* regularly inhabits such microhabitats.

Some parasitised terrestrial invertebrates alter their behaviour in that they for instance become height-seeking and climb up vegetation. One hypothesis to explain height-seeking is that this behaviour is induced to lead to an increased predation risk of the host so that the likelihood of transmission to the next host would also be increased. However, confirmation and documentation of this hypothesis is rare (MOORE & GOTELLI 1990). Is there any indication that height-seeking in newts might be caused by an infection with parasites in order to make them more exposed to predation? Were the newts particularly susceptible to predation by, e.g., birds when they were observed? Most of the observations involved active newts that were fully exposed whereas just three out of 13 newts were hidden, however, this low proportion of hidden height-seeking newts might not be representative, simply because they are harder to find. Thus, the actual proportion of concealed newts at elevated positions is probably higher. Most climbing newts were observed at night, which would only leave them exposed to a few nocturnal species of birds like owls. If height-seeking in *L. vulgaris* primarily aimed at transmitting potential parasites to another host, then all the concealed height-seeking newts would contradict this hypothesis. Additionally, the height-seeking newts did not appear to be particularly severely parasitized as they looked healthy and well-nourished. I would therefore find it unlikely that the behaviour of height-seeking in newts should have any link to parasitism.

Arboreal amphibians are usually adapted to climbing habits by having webbed toes or adhesive toe pads or disks (STEBBINS & COHEN 1995). The feet of *L. vulgaris* are apparently not especially adapted for climbing, however, in many amphibians, the smooth glandular surfaces generally adhere quite well to more vertical structures by suction and surface tension. Height-seeking in *L. vulgaris* probably occurs regularly, but can probably be supposed to play a minor role in its daily life.

I find it likely that height-seeking habits in *L. vulgaris* can be observed throughout its distribution range if searches are made properly and in potentially alternative locations, i.e., above the ground. It may possibly also apply to certain other Palaearctic newt species, especially members of the genus *Lissotriton* which are among the smallest western Palaearctic newts.

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