



Lizard's tail

(*Saururus cernuus*)

Originated in the eastern section of North America. May become troublesome in its natural range. Introduced in Europe as an ornamental plant and has become naturalised in some cases.

Description

- Perennial, herbaceous plant, ranging from 30 to 120 centimetres in height, with a highly characteristic zig-zagging stalk
- The rhizome can reach up to 5 metres in length
- Single, oblong, alternating leaves, heart-shaped at their base, from 10 to 12 cm long and 4 to 5 cm wide
- Spike inflorescence, in clusters, between 15 and 20 cm long
- Hermaphroditic flowers, 5 mm wide, with 6 free-standing stamens, 4 stigmates and 4 carpels almost free-standing two by two, on a whitish, petal-like sepal
- Flowers and leaves produce a pepper scent
- Fruit consists of 4 follicles, almost indehiscent, generally with a single seed

Ecology and reproduction

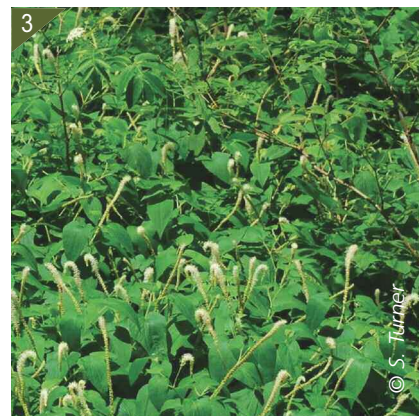
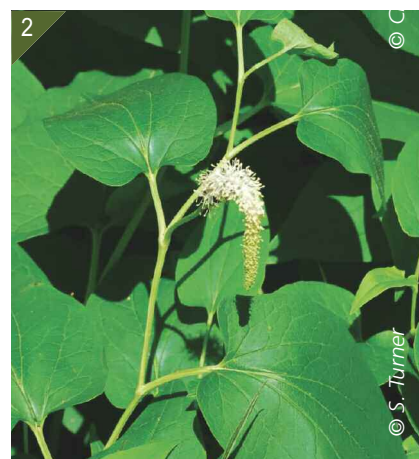
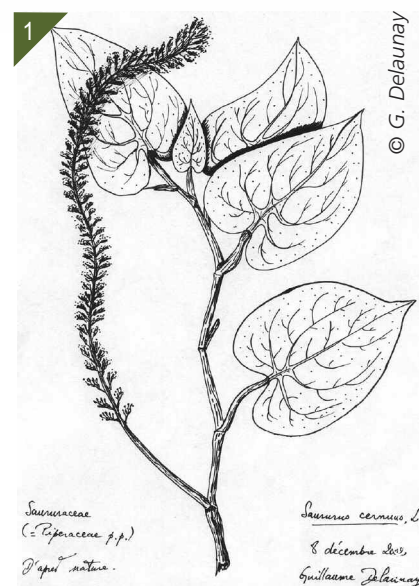
- Prefers marshes, river banks, the bottom of shallow streams, swampy, wet forests
- Vegetative characteristics, fragile and soft in streams. Erect stalks and strong branches on river banks
- Flowers during the summer (June to September). The species is self-incompatible, but produces numerous seeds through cross-pollination
- Vegetative multiplication by producing sprouts along its rhizomes and through the development of adventitious roots on submergent stalks

Documentation

- Delaunay, G. 2005. Contribution à l'étude de la flore du Maine-et-Loire. Un exemple de gestion d'une xénophyte à caractère envahissant : cas de la Lézardelle penchée (*Saururus cernuus* L. Sauracées). Symbioses. 13: 29-31.
- Manual of the Alien Plants of Belgium. 2017. *Saururus cernuus*. [On line]. Document available at: <http://alienplantsbelgium.be/content/saururus-cernuus>
- GT IBMA. 2017. *Saururus cernuus*. Base d'information sur les invasions biologiques en milieux aquatiques. Groupe de travail national Invasions biologiques en milieux aquatiques. UICN France et Agence française pour la biodiversité. [On line]. Document available at: <http://www.gt-ibma.eu/espece/saururus-cernuus/>

Classification

Order	Piperales
Family	Saururaceae
Genus	<i>Saururus</i>
Species	<i>S. cernuus</i> (Linné, 1753)





Lizard's tail

(*Saururus cernuus*)

Managing lizard's tail along the Loire River (Maine-et-Loire department)

Loire-Anjou-Touraine regional nature park

- The regional nature park, created in 1996, federates 117 towns in two departments (Indre-et-Loire and Maine-et-Loire) engaged in a major project to protect their patrimony and ensure best use of local resources.
- The missions assumed by the park focus on the protection and management of the natural and cultural patrimony, territorial planning, economic and social development, welcoming, educating and informing the public, and finally experimental projects and research.
- Contact: Guillaume Delaunay, manager for natural patrimony - g.delaunay@parc-loire-anjou-touraine.fr

Intervention site

- The site is located in the bed of the Loire River, in the Souzay side channel in the town of Souzay-Champigny.
- It is part of the "Vallée de la Loire des Ponts de Cé à Montsoreau" Natura 2000 site that is home to a number of EU-listed habitats and species.
- The lizard's tail was discovered by accident on 16 September 2002 during a field trip on the dewatered sand bars. Two other invasive alien species, with which the lizard's tail may compete, were also discovered on the same site, namely water finger grass (*Paspalum distichum*) and large-flower water primrose (*Ludwigia grandiflora*).
- In November 2003, the lizard's tail had formed a single-species colony covering approximately 70 square metres. The area around the colony was systematically inspected to check if there were other colonies in the vicinity, but none were found.

Disturbances and issues involved

- This perennial, helophyte species, capable of strong growth in favourable environments, can compete with native plant species and contribute to the degradation of EU-listed habitats.
- Along water bodies, the plants can develop strong branches and stalks up to 1.5 metres high.
- They can resist freezing temperatures and winter flooding.



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1. Map showing the Loire-Anjou-Touraine regional nature park.
2. Map showing the intervention site (red star) on the Loire River.

They multiply vegetatively via long rhizomes with many branches.

- The plants are still very rare in France, but their invasive potential has been demonstrated in wetlands in parts of the world where it is alien (e.g. New Zealand).
- To date, no studies have been carried out on its possible impacts on the local biodiversity and on human uses of the river.



Interventions

- Given the invasive potential of lizard's tail, it was decided to eliminate the plants in the framework of the Natura 2000 management programme for the site.
- The work was done on 13 November 2003 because at that time of year, the site was dewatered and heavy equipment could easily access the zone.
- The area to be cleared plus a three-metre border zone around the plant colony was marked with stakes and paint.
- A bulldozer equipped with a bucket scooped up the plants and sediment to a depth of 1.5 to 2 metres. This depth was deemed sufficient because no root fragments were observed below a depth of one metre.
- Additional manual uprooting was done as needed. The sediment and water flowing up from the deepest parts of the excavation were cleaned with a rake and the residual plant fragments were collected by hand.
- The plant waste and sediment were stored in a dry quarry, on a well-drained site far from any wetland, in a high area of the town. The storage site was visited one year later to check that the plants had not started to grow again.

Results and costs

■ Results

- A total volume of 60 cubic metres of plants and sediment was extracted.
- In May 2004, the spring following the work, no new sprouts of lizard's tail were visible on the excavation site and no living plants were observed among the waste deposited in the quarry.
- Since then, annual visits have been made each September to look for any new growth. A few isolated plants were observed in 2005, 2009, 2013 and 2014. Each time, the observed plants were uprooted manually.

■ Costs

- The work was made possible thanks to exceptional funding made available by the French State (funding via the Maritime navigation service in the Departmental territorial directorate). The funds were made rapidly available given the urgency of the situation. The effective cost of the operation was not calculated.
- The mechanised intervention in 2003 represented one day of work and the additional manual work occupied a park employee for a few hours.
- The annual visit to the site takes approximately 90 minutes for two park employees. This monitoring work is included in that for the Natura 2000 site with funding from the EU (ERDF) and the French State (Natura 2000 budget). The estimated cost for the regional nature park is 112 euros per year.

Information on the project

- As early as 2003, this intervention was the topic of publications in specialised, naturalist journals (Symbioses, Bulletin of the Anjou scientific studies society) and in symposia.
- A report on the 15 years of monitoring will be published as a scientific article in 2019.



3. Aerial view of the intervention site (red marker).

Outlook

- The last plants were observed in 2014 when three stalks were noted and destroyed.
- It should be noted that the plant reappeared several times after several consecutive years of absence following the intervention. Caution is therefore advised before declaring the plant definitively eradicated from the site and the annual monitoring will be continued as a precautionary measure.
- In France, the species is not regulated and may be purchased in garden shops. Vigilance is therefore required to detect its presence in the natural environment throughout the country.

Authors: Doriane Blottière, IUCN French committee, and Guillaume Delaunay, Loire-Anjou-Touraine regional nature park. January 2018.

N.B. Unfortunately, the photos of the work in 2003 could not be found by the managers to illustrate this report.

For more information

- Delaunay G. 2003. Contribution à l'étude de la flore du Maine-et-Loire: une nouvelle espèce pour la dition: la Lézardelle penchée, *Saururus cernuus* L. Sp. Pl. 341 (1753). *Saururaceae*. Bulletin trimestriel de la société d'études scientifiques d'Anjou. 118 : 29-38.
- Delaunay G. 2004. Contribution à l'étude de la flore du Maine-et-Loire : quelques observations récentes dans la dition et ses proches environs. *Le Monde des Plantes* 483 : 29-31.
- Delaunay G. 2005. Contribution à l'étude de la flore du Maine-et-Loire. Un exemple de gestion d'une xénophyte à caractère envahissant : cas de la Lézardelle penchée (*Saururus cernuus* L. *Saururacées*). *Symbioses* 13 : 29 - 31. http://www.gtibma.eu/wpcontent/uploads/2017/05/Saururus_cernuus_gestion_maine-et-loire.pdf

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