



GOOD PRACTICE MANAGEMENT

American Skunk Cabbage (*Lysichiton americanus*)



RAPID

Reducing and Preventing
Invasive Alien Species Dispersal



GOOD PRACTICE MANAGEMENT GUIDE FOR American Skunk Cabbage (*Lysichiton americanus*)

Other names: Yellow Skunk Cabbage, Western Skunk Cabbage

For ID guides and more information:

<http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=2110>

<https://www.cabi.org/isc/datasheet/31580>



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American Skunk Cabbage (*Lysichiton americanus*)

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Ecology and impact of American skunk cabbage

The American Skunk Cabbage is native to north-western America and was originally introduced in the beginning of the 20th century as an ornamental plant in gardens but has since escaped and established populations across most of the UK.

American Skunk Cabbage reproduces almost exclusively by seeds, with an estimated 300-650 seeds produced per spadix. With maturity of the seeds, the large yellow flower disconnects from the stalk and falls to the ground, with seeds germinating next to the mother plant. A large seed bank can build up in the soil and can remain viable for at least eight years. However, the plant is slow growing (though long lived) and only plants of three years or older produce flowers and seeds. Plants eventually reach up to 1.5m in height and form dense colonies, crowding out native flora including mosses and vascular plants. This plant can grow in shade or full light at a range of different soil pHs, altitudes and temperatures and, like most invasive species, thrives in disturbed environments. It can be terrestrial, aquatic, or semi-aquatic and in its invasive range it is found almost exclusively in damp habitats.

It spreads readily through seed dispersal and large underground rhizomes and can be found in other habitats. It is thought that it may also be capable of establishing from root fragments, meaning that it may have a large capacity to spread and that care is needed to collect all plant matter if digging it up. American Skunk Cabbage contains calcium oxalate raphides which are mildly harmful if eaten. Although initial invasions will expand slowly, once this plant takes hold it can spread rapidly and become a serious problem, so a robust monitoring plan and a rapid response plan should be in place at any site where this species is considered a risk.



Effective management: summary

There are a limited number of methods that have been tested for effectively removing *L. americanus*. So far, it has been successfully removed by spraying with glyphosate (although a study done in 2009 showed only limited effectiveness when it was used for American Skunk Cabbage eradication), or by physical removal through digging. Although there is no evidence yet, it is likely that a combination of these two methods will prove effective. Other traditional management methods such as physical covering may also work. Effectively limiting the spread is also important, and this can be achieved through removal of the flower heads before they go to seed. Any treatment requires a long-term commitment (sometimes up to 8 years) to exhaust the seed bank and fully eradicate this species.



MANAGEMENT METHODS



Chemical

Glyphosate

Method: Concentration at 6 l/ha using either a spray applicator or weedwiper

Potential equipment requirements (excluding PPE): Knapsack sprayer or weed-wiper

Most suitable situation for method: Most situations, apart from where plant is growing nearby to other plants of special conservation interest.

Efficacy: Good (Aldridge et al. 2018)

Constraints: This method requires AqHerb01 approval from the Environment Agency and NPTC PA1 & PA6 qualifications. There is also potential for non-target damage.

When to manage with glyphosate

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec



Mechanical

Excavating

Method: Digging to remove all plant material, including rhizomes then destruction of plant material either through burning, drying out (well away from water) or secure composting. This process will need to be carried at least twice a year (late spring/early summer and late summer) and can be done manually or with machinery. It is essential to ensure that any equipment used is cleaned thoroughly before it is removed from site. Dig in early summer to weaken remaining rhizomes and repeat for at least 2 years. One study found that annual physical removal of recently established skunk cabbage over five years removed the entire stock, but another found that removal twice a year was ineffective because of stored seed banks which lasts for at least eight years (Aldridge et al. 2018). It is likely that the whole plant needs to be removed in order to be effective, as partial removal reportedly leads to vegetative reproduction and a high level of regeneration (Fuchs *et al.* 2003).

Potential equipment requirements (excluding PPE): Hand tools/smaller digger and strong bags for disposal.

Most suitable situation for method: When colonies are discovered early and are relatively small, as hand excavating can be time consuming, but also because these plants do not reproduce for their first couple of years of growth. If using machinery, then useful for large areas of infestation. Useful for this plant as it grows in areas that are often sensitive to pesticides.

Efficacy: Moderate/Good

Constraints: Labour intensive (manual), and can be difficult to ensure that all root material is removed, as plants can re-establish from any small root fragments left behind.

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec



Ineffective control

Currently, none of the following methods have been tested in enough depth to provide evidence that they would be effective at controlling American Skunk Cabbage:

- shading through promotion of native plants
- biological control
- flame treatments
- tarpaulin
- hydrogen peroxide
- liquid nitrogen

Preventing spread

For the most part, American Skunk Cabbage spreads through transport of seeds, but it is thought that it can spread through rhizome fragments as well. Spread occurs mainly through flowing water. On one watercourse, seeds were found to have floated downstream and established 5.5km from the original release site. Manage extant stands along waterways and transport corridors to prevent dispersal and monitor 'at risk' sites to enable fast eradication if invasion occurs. The risk of the spread of American Skunk Cabbage can be reduced in the short term by cutting the flower before it sets seed. This plant usually flowers in spring before leaves appear. Avoid unintentional transportation of plant material by raising awareness and practicing good biosecurity. For guidance on this, please follow the Check, Clean, Dry guidance in the link below:

<http://www.nonnativespecies.org/checkcleandry/index.cfm>



Legislation

American Skunk Cabbage is **not** currently listed under Schedule 9 of the Wildlife and Countryside Act in England and Wales (2010). However, it is one of 14 invasive non-native plants banned for sale throughout Europe. It is an offence to cultivate or release these plants into the wild (whether intentionally or not).

Health and Safety

As with many plants, the sap of American Skunk Cabbage can irritate the skin. Please wear suitable gloves and protective clothing when working with and removing plants.

Useful resources and guidance on health and safety when planning a project working with invasive species is available on the GBNNSS website:

<http://www.nonnativespecies.org/index.cfm?pageid=266>



References

Aldridge, D., Ockendon, N., Rocha, R., Smith, R.K. & Sutherland, W.J. (2018) Some aspects of control of freshwater invasive species. Pages 525-558 in: W.J. Sutherland, L.V. Dicks, N. Ockendon, S.O. Petrovan & R.K. Smith (eds) What Works in Conservation 2018. Open Book Publishers, Cambridge, UK. <https://www.conservationevidence.com/actions/1101>

Aldridge, D.C., Aldridge, S.L., Mead, A., Ockendon, N., Rocha, R., Scales, H., Smith, R.K., Zieritz, A. & Sutherland, W.J. (2017) Control of freshwater invasive species: global evidence for the effects of selected interventions. Synopses of Conservation Evidence Series. University of Cambridge, Cambridge, UK. <https://doi.org/10.11647/OBP.0131>

CABI : Datasheet report for *Lysichiton americanus* (American Skunk Cabbage). <https://www.cabi.org/isc/datasheetreport?dsid=31580>

Chatters C. (2010) New Forest non-native plants project report of measures undertaken to control American Skunk Cabbage during 2010. *New Forest Plants Project, UK*, 13 pp.

Conservation Evidence: American Skunk Cabbage: https://www.conservationevidence.com/data/index?synopsis_id%5B%5D=18&terms=skunk&country%5B%5D=&result_type=interventions

European and Mediterranean Plant Protection Organization . (2009) Report of a Pest Risk Analysis for *Lysichiton americanus*. European and Mediterranean Plant Protection Organization Report Number 09-15078 rev report. European and Mediterranean Plant Protection Organization Report Number 09-15078 rev.

Fuchs R., Kutzelnigg H., Feige B. & Keil P. (2003) Verwilderte Vorkommen von *Lysichiton americanus* Hultén & St. John (Araceae) in Duisburg und Mülheim an der Ruhr [Savaged occurrence of *Lysichiton americanus* Hultén & St. John (Araceae) in Duisburg and Muelheim an der Ruhr]. *Tuexenia*, 23, 7



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Sanderson, N. A. for Hampshire and Isle of Wight Wildlife Trust New Forest (2013) Non-native Plants Project: Research on the Impact of Skunk Cabbage *Lysichiton americanus* on native vegetation.

Klingenstein F. and Alberternst B. (2010): NOBANIS – Invasive Alien Species Fact Sheet – ***Lysichiton americanus***. – From: Online Database of the European Network on Invasive Alien Species - NOBANIS www.nobanis.org, Date of access 06/07/2018.

Acknowledgements

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Where To Go For More Information

- ◆ <http://www.anglingtrust.net/>
- ◆ <http://www.invasive-species.org/>
- ◆ <http://www.europe-aliens.org/>
- ◆ <http://www.nonnativespecies.org/beplantwise>
- ◆ <http://www.nonnativespecies.org/home>

RAPID

RAPID is a three year EU funded LIFE project led by the Animal and Plant Health Agency (APHA), with Natural England and Bristol Zoological Society as key partners that piloting innovative approaches to Invasive Alien Species (IAS) management in freshwater aquatic, riparian and coastal environments across England. The project is supported by a number of further Technical Partners.

<http://www.nonnativespecies.org/rapid>