EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

23-28453

Summary of EPPO Prioritization process[1] for: *Bidens frondosa* (BIDFR)

In 2022/23, a number of species on the EPPO Observation List were re-prioritized with current information to assess if they should remain on the Observation List or be moved to another list. This is the prioritization summary for *Bidens frondosa* where the outcome is the species should remain on the Observation List.

Section A. Prioritization process scheme for the elaboration of different lists of invasive alien plants (pests or potential pests) for the area under assessment

A.1 Is the plant species known to be alien in all, or a significant part, of the area under assessment?
Yes: *Bidens frondosa* is native to North America (CABI, 2014).

A.2 Is the plant species established in at least a part of the area under assessment? (if yes goto A5)
Yes the species is established in the EPPO region. The species has been recorded in Albania, Austria, Belarus, Bosnia and Herzegovina, Croatia, Denmark, Estonia, France (including Corse), Germany, Hungary, Italy (including Sicilia) Latvia, Lebanon, Lithuania, Moldavia, Montenegro, Morocco, Netherlands, North Macedonia, Norway, Poland, Russia, Serbia, Slovenia, Spain, Syria, Tadzhikistan, Turkey, Ukraine (EPPO, 2023; CABI, 2014). *B. frondosa* is considered invasive or pot. Invasive in Belgium, Bulgaria, Czech Republic, Portugal, Romania, Slovakia, Switzerland, United Kingdom (EPPO 2023; CABI, 2014; Plant of the World, 2023).

A. 3 Is the plant species known to be invasive outside the area under assessment?
A yes for question A.2 means this question is skipped.

A.4 Based on ecoclimatic conditions, could the species establish in the area under assessment?
A yes for question A.2 means this question is skipped.

A.5 How high is the spread potential of the plant in the area under assessment?
High spread potential with moderate uncertainty: Each individual of *B. frondosa* could produce thousands of achenes adapted for dispersal by animals (Coşkunçelebİ et al., 2007; Danuso et al. 2012). It spreads over long distances through epizoochory firmly attached to animal fibres or clothes. (CABI, 2014). In addition, achenes can be spread by waterbodies over long distances (Šumberová et al., 2004; Banfi & Galasso 2010)

A.6 How high is the potential negative impact of the plant on native species, habitats and ecosystems in the area under assessment?
Medium with a moderate uncertainty: Dense stands of *B. frondosa* are likely to affect pioneer vegetation. Namely, the native *Bidens tripartita* and other pioneer plant species typical of muddy riverbanks are affected. Köck (1988) states that *B. frondosa* has undoubtedly higher competitive ability than *B. tripartita*, since it has a higher rate of development and a larger biomass, especially at the early ontogenetic stages. Whereas Gladunova et al. (2016) found that the seed mass and mean number of seeds per one floral head for native *B. tripartita* are higher than for invasive *B. frondosa*.
Published data on the hybridization of *B. frondosa* are contradictory. In the region of Cheboksary (Russia), during the invasion of *B. frondosa* into the biota, its populations, as well as the populations of indigenous

[1] EPPO (2012) EPPO Prioritization process for invasive alien plants. EPPO Bulletin 42, 463-474.

Bidens species underwent significant changes caused by an active natural hybridization and resulting in the vanishing of a local *B. tripartita* species, reduction of the *B. radiate* population, and the formation of a new form of alien *B. frondosa*. *B. frondosa* hybrids, in particular, B. × garumnae, have even higher competitive ability. (Vasilyeva and Papchenkov, 2011).
Whereas, use of molecular genetic methods has demonstrated that *B. frondosa* cannot form hybrids in the upper part of the Volga River basin (Gladunova et al., 2016).
Although the species seams to spread further in Russia (Ronzhina et al., 2021), impacts on native vegetation seems to be rather limited and have not been well documented in the scientific literature (Invasive alien species in Belgium, 2019).

A.7 How high is the potential negative impact of the plant on agriculture, horticulture or forestry in the area under assessment?
Low with medium uncertainty: In China and Italy *B frondosa* is an agricultural weed. In Italy, it is associated in maize, sugarbeet and dry sown rice (Danuso et al., 2012; Yan et al., 2016- Lu et al., 2018))

A.8 How high are the potential additional impacts (e.g. on animal and human health, on infrastructures, on recreational activities, other trade related impacts such as market losses)?
Low with low uncertainty. The species is not toxic to humans or animals but can cause painful infections in dogs (especially hunting dogs) by getting under the skin through the fur, into the ears, nostrils, and even into the throat (Banfi & Galasso; 2010).

Outcome of Section A: *Bidens frondosa* is included on the EPPO Observation List

		A5 -Spread potential		
		Low	**Medium**	**High**
Adverse impacts (maximum rating from questions A6, A7 and A8.	**Low**	**List of minor concern**	**List of minor concern**	**List of minor concern**
	Medium	**List of minor concern**	**Observation List**	**Observation List**
	High	**Observation List**	**Observation List**	**List of invasive alien plants**

Bidens frondosa is not considered further. The assessment stops here.

B. Prioritization process scheme for the identification of invasive alien plants for which a PRA is needed

B.1 Is the plant species internationally traded or are there other existing or potential international pathways?

B.2 Is the risk of introduction by these international pathways identified to be superior to natural spread?

B.3 Does the plant species still have a significant area suitable for further spread in the area under assessment?

Outcome of section B:

Selected references

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