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Santamaría, L. and Martin-Ortega, J. (2023) How Europe's most iconic wetland could be finished off by a strawberry farming bill. *Nature Water*, 1 (7). pp. 564-565.

<https://doi.org/10.1038/s44221-023-00100-w>

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1 How Europe's most iconic wetland could be finished off by 2 a strawberry farming bill

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10 Doñana is one of the largest wetlands in Europe, and one of its most iconic protected areas.
11 A World Heritage and Ramsar site, it hosts up to half a million migratory waterbirds annually,
12 around 50 resident waterbird species, a rich biodiversity, and highly endangered species such
13 as the Iberian imperial eagle and the Iberian lynx. But it has been degrading for decades - and
14 a recent farming Bill legalising informal land occupation for intensive strawberry production in
15 its immediate neighbourhood is risking to devastate it completely.

16 The conflictive process that led to Doñana's legal protection in the 60s left a lasting legacy on
17 its fate as a conservation area. Only one-third of the original marshland and a fraction of its
18 forests, streams and ponds were covered by the protected status. The rest were turned into
19 polders, rice fields, irrigated agriculture, and exotic tree plantations^[1]. These changes resulted
20 in a polarised landscape of extremes: anthropogenic *versus* pristine^[2]. Despite its growing
21 international reputation as a conservation area, its surroundings have been subjected to rapid
22 land- and water-use intensification for agriculture and tourism^[1], leading to profound shortage
23 and pollution of surface water, groundwater overexploitation, overgrazing, and recurrent forest
24 fires. Shifting baselines generated perceptual biases hampering the identification of the
25 ensuing ecological degradation. Multi-million investments in sustainable development
26 programs largely failed because they also promoted the continued expansion of infrastructures
27 for tourism and intensive, greenhouse-based agriculture that now threaten Doñana^[3].

28 Aquatic ecosystems are becoming increasingly ephemeral, and permanent waterbodies
29 hosting key aquatic biota have disappeared. The aquatic fauna is dominated by an invasion
30 complex of at least ten exotic species^[4]. Marshland vegetation and soils are severely
31 degraded, with cascading effects on carbon storage and nutrient cycling. Temporary ponds,
32 once widespread, have been reduced by 59%^[5]; and those still remaining show severely
33 reduced flooding periods and impoverished plant, invertebrate and amphibian communities.
34 Most waterbirds show decreasing numbers, except for those able to feed on anthropogenic
35 habitats or on alien fish and crayfish^[6]. Terrestrial ecosystems are also affected. Cork-oak
36 woodlands are reduced to a small fraction of their historic cover^[7]. Mature scrubland is being
37 replaced by pioneer species tolerant to drier conditions. Doñana's most iconic animals are
38 also suffering. The Iberian lynx faces dire conditions owing to the sustained decrease in
39 rabbits^[8]. This lack of rabbits, worsened by declines in alternative prey such as geese and
40 other waterbirds, also threatens the Imperial eagle.

41 Although Doñana still possesses outstanding biodiversity that justifies its conservation, this
42 pattern of relentless degradation is reaching a point of no-return. In the absence of decisive
43 action, the complete loss of its original conservation value is in sight (as happened in other
44 Spanish wetlands, such as Tablas de Daimiel^[9]). A new program of ecological restoration,

45 focusing on revitalizing the water cycle and restoring the vegetation and soil is urgently
46 needed; coupled with measures to halt the overexploitation of water resources at broader
47 scale (i.e. the whole watershed and aquifer). Unfortunately, national, regional, and local
48 authorities have been traditionally reluctant to intervene. Action was only initiated following a
49 2021 ruling by the European Court of Justice, which penalised Spain for failing to control illegal
50 groundwater extraction that depletes Doñana's aquifer. More comprehensive actions in
51 compliance with this ruling, the objectives set by the EU's Water Framework Directive, and
52 the requirements of climate change adaptation, still await drafting and implementation.

53 It is in this context that the regional government passed in March the above-mentioned Bill
54 legalising the informal occupation of land originally devoted to forestry or rain-fed agriculture,
55 for its use in intensive irrigated strawberry farming. The Bill was approved using an exceptional
56 procedure for urgent legislation, thus preventing parliamentary debate, and builds on alleged
57 historical rights that have been repeatedly rejected in previous court cases. The Bill has
58 received strong opposition from scientists, conservationists, and the national government, and
59 has resulted in an unprecedented confrontation with the European Commission, who threaten
60 Spain with sanctions. The Bill is tailored to maintain the status quo, further preventing the
61 governance changes required to achieve sustainability whenever they curtail short-term
62 economic returns. This aim was evidenced further when a mere few weeks after the strawberry
63 Bill was passed, the regional government released a positive environmental impact
64 assessment for a mega-housing development and golf course that would draw even more
65 water from Doñana's watershed. Even if the Bill were not to succeed in granting more irrigation
66 rights, it feeds the dangerous narrative of polarisation between farming and conservation that
67 is gaining ground in Europe in recent years^[10]. Further, it poses a reputational and economic
68 risk, with major European agri-food companies and retailers having already voiced concerns
69 over the environmental impact of their Spanish imported fruits.

70 Doñana's ecosystems are critically dependent on its declining water resources. The new
71 farming Bill not only fails to facilitate much needed urgent action to revert the situation:
72 combined with other flawed policies, it compromises past and current efforts to ensure
73 Doñana's long-term survival, potentially delivering in the final blow to this iconic space. We
74 can only hope that the reactions against its approval will mark a watershed moment triggering
75 a new era of valiant, evidence-based planning and conservation policy.

76 **Acknowledgements:** Doñana is one of the 'Knowledge Sites' of the EU funded project WaterLANDS:
77 Water-based solutions for carbon storage, people and wilderness (Horizon 2020 research and
78 innovation programme; Grant Agreement No. 101036484 (WaterLANDS)). This correspondence reflects
79 only the authors' views and the European Commission cannot be held responsible for any use that may
80 be made of the information contained therein.

81 The authors declare no competing interests.

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