How many Important Plant Areas (IPAs) are now recognised globally? How effective are IPAs in protecting plant biodiversity? Currently, what are the greatest threats to IPAs in Europe and the Mediterranean region?

https://stateoftheworldplants.com/2017/areas-important-for-plants.html
There is only 53% overlap between Important Plant Areas and Important Bird and Biodiversity Areas across Europe and the Mediterranean region.
HOW EFFECTIVE IS THE MANAGEMENT AND PROTECTION OF IPAS IN EUROPE AND THE MEDITERRANEAN REGION?

IPAs have been documented for 27 countries across Europe and the Mediterranean region\(^2\)-\(^4\). Analysis of IPA data against the World Database of Protected Areas\(^5\) revealed that 85% of IPAs in the region have some formal protection in at least a portion of the site. These high levels of overall protection align well with the Global Strategy for Plant Conservation (GSPC) Target 5: protection for at least 75% of the most important areas for plant diversity in each ecological region in the world. Some notable successes in increased protection for IPAs have been achieved within the last decade; for example, in 2010 only 18 (19%) of the 97 IPAs in Croatia were protected, whereas this figure is now 90 IPAs (93%). However, levels of protection vary widely between countries: in the United Kingdom nearly all IPAs (162 of 164 sites) have some form of legal protection, whereas outside the EU, particularly in North Africa and the Middle East, this can fall below 50%.

An analysis of the same IPA dataset against the distribution of IBAs\(^6\) reveals that on average only 53% of IPAs overlap with one or more IBAs (Figure 1), with no one country exceeding 75%. Therefore, while there is good congruence between important sites for plants and birds in many cases, these findings indicate the clear need to assess multiple groups of organisms in site-based prioritisation schemes, as over-reliance on one dataset will result in globally important sites being omitted (see Box 1 and Box 2).

FIGURE 1: SCHEMATIC TO INDICATE THE OVERLAP OF IMPORTANT PLANTS AREAS WITH IMPORTANT BIODIVERSITY AND BIRD AREAS IN EUROPE AND THE MEDITERRANEAN REGION

THREATS TO IPAS IN EUROPE AND THE MEDITERRANEAN REGION

An integral part of the IPA assessment process is documenting the threats impacting each site. Threat information is available for 1,518 IPAs across Europe and the Mediterranean region, of which 1,092 have a broad measure of threat impact (high, medium, low)\(^1\) (see supplementary material). Almost 95% of IPAs are affected by at least one threat category, with 60% (658 IPAs) experiencing at least one high-impact threat. Many IPAs are also impacted by multiple threats: nearly 50% have four or more associated threats, although only 7% have four or more high-impact threats (see Table 1).

Threats vary widely between IPAs but some interesting trends across Europe and the Mediterranean are evident (Table 1). Development and construction is the largest class of threat, but it is noteworthy that the most damaging form of development across the region is from tourism and recreation, impacting 595 IPAs in total – 136 with high impact (see Box 2). This can range, for example, from the disturbance and trampling of sensitive habitats by excessive recreational visitors, as at the Marele Grohotis IPA in the Piatra Craiului National Park of Romania, to the widespread destruction of habitat for tourist resort development, as in the Western Mediterranean Coastal Dunes IPA in Egypt. This highlights the urgent need for rigorous Environmental Impact Assessments of proposed tourism developments.

IMPORTANT PLANT AREAS (IPAS) INCLUDE REGIONS OF INTERNATIONALLY SIGNIFICANT POPULATIONS OF THREATENED PLANT SPECIES, THREATENED HABITATS, AND/OR AREAS THAT EXHIBIT EXCEPTIONAL BOTANICAL RICHNESS.

In total, nearly 2,550 IPAs have been either fully or provisionally identified and published to date\(^1\). This year we look at the effectiveness of the IPA initiative in protecting plant biodiversity, using sites in Europe and the Mediterranean region as a case study. We examine the level of protection these sites now have, and how areas identified as IPAs overlap with other site-based prioritisation initiatives, including Important Bird and Biodiversity Areas (IBAs) and Key Biodiversity Areas (KBAs). We then examine the nature of current and future threats that these IPAs face and consider the additional measures that are needed in order to ensure a positive outcome for plant biodiversity conservation into the future.
BOX 1: IPAS, IBAS AND KBAS IN TURKEY[7]

Co-occurrence of IPAs with conservation prioritisation measures for other taxonomic groups, such as IBAs or KBAs, can bolster the case for their protection. In Turkey, 62% of IPAs overlap with IBAs, and 79% with KBAs – the latter figure being higher because plant data were included in the KBA assessments. For example, Acığöl (Aci Lake), a shallow body of saline and fresh water in south-west Turkey, is an IPA on the basis of regionally threatened salt steppe habitats and the presence of six globally threatened endemic plants. The site is also an IBA, as it supports internationally important breeding populations of wetland and steppe birds, including the globally threatened Great Bustard (Otis tarda)[12]. However, there are some areas where IPAs and IBAs have lower congruence. For example, many freshwater IBAs in Turkey, which have been classified as such because of their importance for migratory and breeding birds, have low plant diversity and a predominance of widespread, well-dispersed species. The Büyükçekmece Lake near Istanbul is a good example of this; it qualifies as an IBA because of its large number of wintering waterfowl, but is not an IPA.

BOX 2: IPAS UNDER THREAT – THE CASE OF POODRI, CZECH REPUBLIC

The alluvial wetland region of Poodri, along the Odra River floodplain in the Czech Republic, is designated an IPA primarily on the basis of the presence of 14 regionally threatened habitats, including large extents of natural eutrophic lakes, lowland hay meadows, and alluvial and riparian forests. It is a site of international conservation importance, with multiple protected area designations including Ramsar Site, Protected Landscape Area and National Nature Reserve, as well as IBA and KBA status[8, 13]. Despite this, threat assessments made at the time of IPA designation indicate that Poodri has at least 23 threat factors, of which 9 are classified as high impact. These include eutrophication and waterway management, but as with many IPAs within Europe, Poodri is under greatest threat from development, including for tourism and recreation, as well as the abandonment of traditional land use practices.

PAS AND KBAS IN THE CZECH REPUBLIC, SHOWING THE LOCATION OF THE HIGHLY THREATENED POODRI SITE

KBA data from Birdlife International and Conservation International[8]
### TABLE 1: THE MOST SIGNIFICANT THREAT CATEGORIES IMPACTING IPAS IN EUROPE AND THE MEDITERRANEAN REGION

*Per cent of IPAs impacted is measured against all IPAs with available threat data. Countries with less than five IPAs documented are omitted from the right-hand column.

**Countries in final column listed in order of %, highest first.

<table>
<thead>
<tr>
<th>THREAT CATEGORY</th>
<th>NUMBER OF IPAS IMPACTED</th>
<th>% OF IPAS IMPACTED*</th>
<th>% OF TOTAL THREATS TO IPAS</th>
<th>NUMBER OF IPAS IMPACTED AT HIGH LEVEL</th>
<th>COUNTRIES WHERE THREAT IS MOST SIGNIFICANT AS % OF TOTAL NATIONAL THREATS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development &amp; construction (recreation/tourism)</td>
<td>595</td>
<td>40.2</td>
<td>9.7</td>
<td>136</td>
<td>Ukraine, Slovenia, Montenegro, Estonia, Lebanon, Romania</td>
</tr>
<tr>
<td>Land abandonment/reduced management</td>
<td>426</td>
<td>28.8</td>
<td>6.9</td>
<td>152</td>
<td>Croatia, Ukraine, Estonia, Slovenia, United Kingdom, Slovakia</td>
</tr>
<tr>
<td>Agricultural intensification/expansion (grazing)</td>
<td>402</td>
<td>27.2</td>
<td>6.5</td>
<td>65</td>
<td>Morocco, Albania, Syria, Algeria, Tunisia, Israel</td>
</tr>
<tr>
<td>Inappropriate forest management (intensified forest management)</td>
<td>310</td>
<td>20.9</td>
<td>5.0</td>
<td>71</td>
<td>Macedonia, Estonia, Slovakia, Poland, Bulgaria, Czech Republic</td>
</tr>
<tr>
<td>Inappropriate forest management (deforestation)</td>
<td>269</td>
<td>18.2</td>
<td>4.4</td>
<td>67</td>
<td>Morocco, Albania, Montenegro, Macedonia, Lebanon, Romania</td>
</tr>
<tr>
<td>Development &amp; construction (urbanisation)</td>
<td>265</td>
<td>17.9</td>
<td>4.3</td>
<td>46</td>
<td>Israel, Lebanon, Slovenia, Montenegro, Croatia, Poland</td>
</tr>
<tr>
<td>Habitat fragmentation</td>
<td>264</td>
<td>17.8</td>
<td>4.3</td>
<td>71</td>
<td>Israel, Slovakia, United Kingdom, Albania, Czech Republic, Macedonia</td>
</tr>
<tr>
<td>Development &amp; construction (infrastructure/transport)</td>
<td>251</td>
<td>17.0</td>
<td>4.1</td>
<td>40</td>
<td>Poland, Montenegro, Slovenia, Estonia, Egypt, Macedonia</td>
</tr>
<tr>
<td>Invasive species (plants)</td>
<td>251</td>
<td>17.0</td>
<td>4.1</td>
<td>55</td>
<td>United Kingdom, Czech Republic, Slovakia, Ukraine, Montenegro, Croatia</td>
</tr>
<tr>
<td>Inappropriate forest management (afforestation)</td>
<td>248</td>
<td>16.8</td>
<td>4.0</td>
<td>41</td>
<td>Ukraine, Slovakia, Estonia, Turkey, Romania, Czech Republic</td>
</tr>
</tbody>
</table>

### BOX 3: CULTURAL LANDSCAPES – ABANDONMENT OF TRADITIONAL HAY FARMING PRACTICES AND THE THREAT TO IPAS

IPA data indicate that land abandonment and reduced habitat management are also significant threats to plant diversity in parts of Europe and the Mediterranean region, affecting 426 IPAs and having a high impact on 152 sites. Abandonment of traditionally-farmed landscapes in Europe has been a marked phenomenon over recent decades, particularly in agriculturally marginal land\(^9\). Some of the most important habitats for biodiversity in Europe are the result of a long-term relationship between traditional farming practices and wild flora and fauna, sometimes spanning centuries. Such practices can promote a wealth of semi-natural microhabitats\(^9,10\).
Adverse forest management practices are the second major threat; this includes both habitat destruction through deforestation, and habitat conversion through afforestation, typically for commercial timber and other wood products. The third major threat is agricultural intensification and expansion, particularly in North Africa and the Middle East where increased grazing pressure from domestic herds is the primary threat category, with 67% of IPAs impacted\(^3\). Conversely, the species-rich hay meadows of Eastern Europe are well represented in the IPA network – for example in Croatia. Human intervention, through community-led restoration of traditional farming, is being practised in some areas in order to restore the plants (see Box 3). The opposite situation occurs in the tropics, where species-rich rainforests are of greatest conservation value\(^9\) and land abandonment can lead to rapid and marked increases in species diversity, with benefits obtained from these secondary forests for both biodiversity and effective carbon storage\(^11\). Hence, threat categories for IPAs are very region-specific and highlight the importance of understanding the historical context and baseline biodiversity for each site.

In summary, the preliminary assessment carried out for this year’s State of the World’s Plants reveals good levels of success with the designation and formal protection of IPAs in Europe and the Mediterranean region. Hence there is, on a regional basis at least, cause for some optimism for plant conservation and achieving GSPC Target 5, although it remains to be seen if this pattern is similar across the other global sites, including the Kew-led Tropical Important Plant Areas. An ongoing issue, however, is the lack of congruence between different formal protection initiatives and their effective management. Despite plants driving the ecosystems that support faunal assemblages, most protected areas were not originally established with plant conservation as a focus. Consequently, many are not managed for their plants, and the key challenge is to ensure protected area initiatives enable better management for the species and habitats highlighted in the IPA assessments\(^12\). A further pressing need is to increase the connectivity of natural habitat in the landscape between these important sites, in order to increase resilience to biodiversity loss in the face of climate change; this is particularly challenging in fragmented and transformed landscapes, where maintaining biodiversity corridors is essential to reducing the risk of plant diversity loss\(^14\).
Contributors and references

Authors are affiliated to RBG Kew unless otherwise stated.
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5. Important Plant Areas

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