Maple conservation – The Red List of Acer and beyond

by Dan Crowley

As members of the Maple Society will of course be aware, *The Red List of Acer: revised and extended* (hereon referred to as *The Red List of Acer*) was published by Botanic Gardens Conservation International (BGCI) in September of this year (Crowley *et al.* 2020). The publication reports the conservation status of 158 maple species, as assessed for The IUCN Red List of Threatened Species (IUCN 2020), with 23% considered threatened with extinction in the wild. The release of the publication gained considerable coverage in the media, the highlight here in the UK being its prominence across various BBC outlets (e.g: https://www.bbc.co.uk/news/science-environment-54240554).

The Maple Society played a key role in the development of *The Red List of Acer*, hosting a successful Red Listing workshop at the 2017 International Maple Symposium, as well as sponsoring the design and printing of the publication itself. All at BGCI are grateful for the support the Maple Society has shown for this work.

As well as the physical copies made available to Maple Society members, courtesy of the Maple Society, copies of *The Red List of Acer* have also so far been sent to over 60 institutions in more than 20 countries. It is wonderful that in doing so we are able not only to highlight the plight of these trees that we care so much about, but also promote the work of the Maple Society, featured on page 11 of the publication. For those who have not been able to obtain a physical copy, the publication is downloadable from the BGCI website (www.bgci.org).

Eagled-eyed readers of *The Red List of Acer* would have noticed that Koen Camelbeke's heartfelt foreword was penned in early February, when at Arboretum Wespelaar, *Acer rubrum* was in full bloom. Examples of the same species at Westonbirt Arboretum were approaching full autumn colour by the time *The Red List of Acer* was released, as like much in these challenging times, the publication was complicated by the unforeseen and uncertain circumstances many of us continue to find ourselves in.

During this period, and thus too late for inclusion in *The Red List of Acer*, a new maple species was described. From the Hyrcanian forests of northern Iran comes *Acer iranicum*, a relative of *A. opalus* in Section *Acer* (Mohtashamian *et al.* 2020). Details of its conservation status are provided in that publication and, in consultation with the authors, a full conservation assessment for the IUCN Red List of Threatened Species is now in preparation. Fascinatingly, the species is the second from Iran to be described in recent years. *Acer mazandaranicum*, was described in 2008 and is assessed as Endangered on account of its restricted range and being threatened by habitat loss (Crowley *et al.* 2020). Suffice to say that there is more work to be done to better understand both of these species, particularly in relation to other species in section *Acer.*

These species are two of five maples that have been described in the last 20 years. Perhaps unsurprisingly, the other three of these five species are also currently considered threatened. Described in 2000 (Yamazaki 2000), *Acer amamiense* is the only maple species assessed as Critically Endangered under IUCN's D criterion, meaning that there are less than 50 mature specimens known in the wild (IUCN SSC 2012). In the case of *A. amamiense*, there are believed only to be 10 mature specimens, with more growing in collections across southern England than there are in its natural habitat on Amami Oshima (Amami Island) in southern Japan. *Acer binzayedii* is known to be represented by more individuals, though still less than 100, and is assessed as Critically Endangered owing to its very restricted distribution and comprising only two small subpopulations that are at high risk (Crowley *et al.* 2020). Fortunately though, the species is the subject of a conservation project to inform species management, led by Yalma Vargas-Rodriguez of the University of Guadalajara, Mexico, whose work is also being supported by the Maple Society (Vargas-Rodriguez 2020). *Acer pseudowilsonii*, from northern Thailand and described in 2010 (Chen 2010), is assessed as Endangered and is threatened by habitat loss (Crowley *et al.* 2020). The Chinese *A. yangbiense* is also Endangered (Crowley *et al.* 2020; Tao *et al.* 2020), though had previously been considered Critically Endangered (Gibbs and Chen 2009; Tao *et al.* 2020). Described from only a handful of individuals in 2003 (Chen and Yang 2003), further survey work led to the discovery of nearly 600 individuals, while the species has also been the subject of an integrated conservation project, including both *in situ* and *ex situ* elements (Sun 2018).

These species, from diverse geographic regions and representing different clades (evolutionary branches) within the genus, highlight well the plight of maples in the wild. Their relatively recent discoveries also clearly illustrate that there is doubtless more to discover and a continuing need for further maple exploration. Conservation actions are required to address the needs of not only the threatened species of maple, but those that were listed as Near Threatened, and of equal importance, the Data Deficient. Conservation of these maples requires concerted, coordinated action. Furthermore, we must act to ensure those currently listed as Least Concern, remain as species that are not threatened with extinction.

Thus, it is appropriate and timely that BGCI are establishing the Global Conservation Consortium for *Acer*, one of a suite of several Global Conservation Consortia. The Consortia-wide goal is to mobilize a coordinated network of institutions and experts to collaboratively develop and implement comprehensive conservation strategies for priority threatened plant groups. The Acer consortium is led by the Botanical Garden at the University of British Columbia in Vancouver.

Several activities for *Acer* are now being planned, with others already in progress. One such project is a global accession-level, *ex situ* gap analysis of threatened *Acer* species. While a species-level *ex situ* survey is included within *The Red List of Acer*, this work will establish how well represented threatened species are, considering their representation in collections in relation to their wild populations. Results will inform us as to which populations of threatened species should be targeted for

collecting expeditions in order to develop and manage comprehensive *ex situ* living collections, in support of vital *in situ* conservation actions.

As those who are passionate about maples and their conservation, the Maple Society is key in supporting conservation work and sharing information and knowledge with like-minded people. The society has supported several important and impactful projects that inspire us to do more. As this role becomes ever more important, long may it continue!

References:

Chen, Y. and Yang, Q. (2003). *Acer yangbiense* (Aceraceae), a New Species from Yunnan, China. *Novon* 13: 296-299

Chen Y.-S. (2010). A new species of *Acer* (Aceraceae) from northern Thailand. *Blumea* 55: 242-245

Crowley, D., Barstow, M., Rivers, M. and Harvey-Brown, Y. (2020). *The Red List of Acer: revised and extended*. Richmond: Botanic Gardens Conservation International

Gibbs and Chen Y. (2009). *The Red List of Maples.* Richmond: Botanic Gardens Conservation International

IUCN Species Survival Commission (SSC) (2012). *IUCN Red List Categories and Criteria. Version 3.1 (second edition).* Gland and Cambridge: IUCN

IUCN (2020). *The IUCN Red List of Threatened Species*. Available online at: www.iucn.org [accessed October 2020].

Mohtashamian, M., Chatrenoor, T., Fathi, F. and Rastegar, A. (2020). Acer iranicum (Sapindaceae), A New Species of Maple from Northern Iran. *Systematic Botany* 45 (1): 163-172

Sun, W. (2018). Conservation of Chinese Maples: A Case of Acer yangbiense, the typical PSESP (Plant Species with Extremely Small Populations) endemic to Yunnan in Southwest China. In Angus (ed.) *Proceedings of the International Maple Symposium 2017*: pp. 30-41

Tao, L., Han. C., Song, K. and Sun, W. (2020). A tree species with an extremely small population: recategorizing the Critically Endangered *Acer yangbiense. Oryx* 54 (4): 474-477

Vargas-Rodriguez, Y. (2020). Conservation Bursary Awards 2019 – *Acer binzayedii* project. *The Maple Society Newsletter* 30 (1): 36-38.

Yamazaki, T. (2000). A New Species of *Acer* from the Ryukus. *Journal of Japanese Botany* 75: 282-284