The Status of Coppice Management within Forested Natura 2000 Sites

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Most forest habitats that are listed for their nature conservation importance in the Habitats Directive of the European Union and the Bern Convention have been modified for centuries by human intervention. It is well documented that many forests throughout Europe were traditionally coppiced (cf. Piussi & Redon 2001; Kirby & Watkins 2015), thus influencing the woodland ecology not only at the stand level, but at wider spatial (landscape) and temporal scales, creating specific communities that are often the focus of nature conservation initiatives. As such, coppice management falls within the scope of the Habitats Directive (Council Directive 92/43/EEC; European Commission 2003; Loidi & Fernandez-Gonzalez 2012). However, this form of silvicultural system has become obsolete in many of the EU28 countries, particularly those in the north and east, whereas in others it is still very relevant to the country’s economy (Figure 1). Nowadays, the trend towards non-intervention in coppice stands, or their conversion to high forest, is the de facto approach within areas protected for conservation.

In order to examine prevailing attitudes towards coppicing within sites designated under the Natura 2000 framework as Sites of Community Importance or Special Areas of Conservation (SCIs or SACs), a study was carried out within the framework of the EuroCoppice COST Action FP1301 to examine the relevant Site Management Plans (SMPs) in six participating countries. The aim was to sample the extent to which different countries recognised coppicing activities, and what extent they considered alternative options that might better secure the conservation status of the habitat in question (The full study is available in the open source iForest article Mairota et al. 2016a). These six countries (Belgium, Czech Republic, Estonia, ...
Germany, Italy and the United Kingdom), represent a range of EU Biogeographical Regions, including both small and large regions, different administrative systems (centralized to devolved) and greatly differing amounts of forest cover. In addition, a sub-national level (at either the NUTS1 or NUTS2 regional scale) was chosen to review Natura 2000 Site Management Plans (SMPs) for three of these countries (Germany, Italy and the United Kingdom).

The share of Natura 2000 area in the sample countries is comparable to the EU28 terrestrial average, which is 14.6%. Of this, 73.9% is protected under the SCIs and SACs of the Habitats Directive, while the remainder falls under the Birds Directive. However, progress in formulating SMPs in compliance with the Habitats Directive’s recommendations varies widely between the EU countries, as is mirrored in the six sample countries. In Italy there are a number of NUTS2 regions without enforced, or even envisaged SMPs, but here compliance to the Directive is ensured by collective conservation measures for those habitat types belonging to the same biogeographical zone (IT-D4 Friuli Venezia Giulia), or macro-environmental category (IT-C1 Piemonte and IT-F4 Puglia).

As a general tendency, it appears that a greater proportion of forest areas were designated as SCIs/SACs than many other habitats. The majority (68%) of the 78 Annex I forest habitat types recognised by the Habitats Directive have the potential to be coppiced, i.e. the dominant species is capable of resprouting. This ability varies among the main forest habitat categories (i.e. 9000 ‘Forests of Boreal Europe’, 9100 ‘Forests of Temperate Europe’, 9200 ‘Mediterranean deciduous forests’, 9300 ‘Mediterranean sclerophyllous forests’) (Figure 2).

In the sample countries, 38% of the habitat types were considered to have been coppices in the past, with more and more evidence to this effect being reported (e.g. Madera et al. 2017). However, coppicing is no longer allowed in Estonia (where non-intervention is the current management strategy in protected areas), while it is only allowed for research purposes in the Czech Republic. Management prescriptions for coppices in SCIs/SACs tend to be rather strict in Italy (detailing specific aspects such as coupe size, rotation length, number of standards, standard age category, sporadic tree species release and canopy cover). Conversely, coppicing done to conserve particular target species is still practised in parts of the United Kingdom and Germany. Similar signs of a strict conservation interest have in fact also been noted in Italy (Negro et al. 2014), where a debate has recently begun between the Italian chapter of Pro Silva...
(a Europe-wide association of silviculturists) and two national scientific societies dealing with vegetation science (SISV) and forest ecology (SISEF).

A closer look was taken at a number of SCI/SAC management plans (172 SMPs, 51% of those available) of five administrative regions in three sample countries (IT-E2 Umbria and ITF-4 Puglia (NUTS2), UK-J, South East England and UK-L Wales (NUTS1), and DE-B Rhineland-Palatinate (NUTS1). This revealed that coppice management was rarely encouraged and that conversion to high forest was often thought desirable. While the justification for this view was seldom provided, other than in generic/anecdotal terms, it was frequently argued that high forest could achieve higher financial returns, or that high forest, regenerating from seed, was the more ‘natural’ condition. That being said, no scientific study has thus far convincingly demonstrated that a high forest/wilderness state could achieve a more ‘favourable conservation status’ than that provided by coppice in most SCI/SAC forest habitats (European Commission 2013). On the other hand, a number of studies have provided increasing evidence of the importance of coppice in promoting biodiversity through its provision of open habitats (e.g. Garadnai et al. 2010, Mölder, 2010, Müllerová 2015).

SMPs generally addressed the notable species listed in Annex II where they occurred within the habitat, but were less concerned with other species that might benefit from coppice management (Buckley and Mills 2015). This is in spite of the Habitat Directive’s aim to protect the habitat per se, with its array of characteristic (but not necessarily rare) species; in this case, species that are frequently associated with the mosaic of age classes created by coppice woods or coppice-with-standards.

Another common feature was that, notwithstanding differences in the amount of detail required by the individual regional authorities dealing with SMPs, these plans were often rather descriptive or aspirational documents and provided no comprehensive management prescriptions or schedules. Their utility as the first level of a cascade process for integrated landscape/forest planning (sensu Baskent & Keles 2005) is therefore very limited. This is concerning, because decisions to abandon coppice at the stand level, or to select another (high forest) silvicultural solution, has a strong impact on forest landscape structure and functioning and could affect some key elements of biodiversity. A number of technical practices, such as the group selection of standards or single tree silviculture, when combined with non-intervention and conversion to high forest, have the potential to increase forest landscape micro- and macro-heterogeneity (Cf. Mairota et al. 2016b). This is a desirable objective in order to maintain high levels of beta-diversity in the long run (e.g. Hunter 1990, Buckley 1992, Fuller & Warren 1993, Mairota & Piussi 2006, Chiarucci et al. 2008, Garadnai et al. 2010, Kopecký et al. 2013 and Buckley & Mills 2015).

A case can be made for a more balanced approach to forest management (combining coppice, high forest and non-intervention), as this appears most likely to revive and maintain specific forest landscape habitats and site conditions, as well as revitalise local economies. Overcoming socio-economic factors and, especially, the cultural factors behind SMP strategies and attitudes is necessary. One factor that may become important is the increasing demand for wood for energy (Mantau et al. 2010, UN-ECE-FAO 2011). In response to the EU Renewable Energy Directive 2009/28/EC and in compliance with the Framework Program for the Forestry Sector, Horizon 2020 should improve the transparency of wood-fuel flows in agreement with the EU 995/2010 Timber Regulation.
REFERENCES


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