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The multi-functional management of Montados promotes structural diversity, which when extended over large areas results in high levels of biodiversity.



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Montado is listed under the EU Habitats Directive (habitat 6310), and constitutes the key habitat of numerous Natura 2000 sites in the Alentejo region, Portugal.

Montado

PORTUGAL

Montado (*dehesa* in Spanish) is a traditional wood-pasture system where cork oaks (*Quercus suber*) and holm oaks (*Quercus rotundifolia*) are the dominant trees. Rich in biodiversity, montados are listed under the EU Habitats Directive, constitute a key habitat in various sites in the Natura 2000 network, and are considered high nature value farmland.

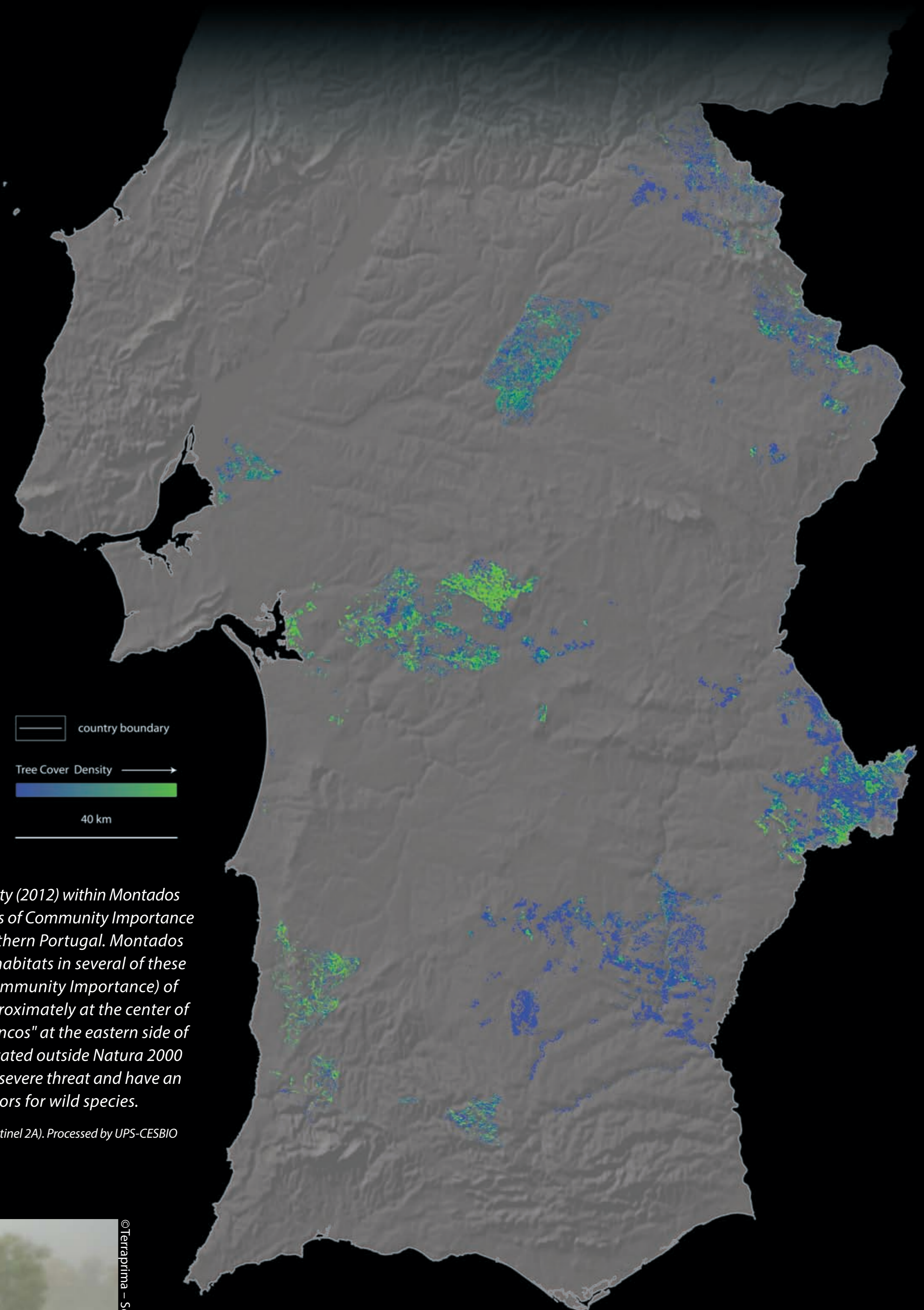
Cork, which is harvested every 9–12 years, is the most important forest product from montados, with Portugal producing 54 per cent of the world's cork. Livestock provides another source of income in these areas, while from a cultural and recreational perspective, montados are valued for their landscape aesthetics, natural values and cultural heritage.

Water, nutrient cycles and soil erosion are important regulating services to be managed in montados, where the main threats are water stress due to more frequent droughts and warmer summers, soil degradation from overgrazing and tillage (for crop seeding and

shrub control), pests and disease. The current lack of regeneration and the death of adult trees are of serious concern and may lead to an eventual loss of montados and their replacement by shrubland.

The correct management of soil, grazing and the overall habitat can counteract these threats. For example, protecting and restoring soil condition is central to improving tree health. Measures to ensure the survival of juvenile trees into adulthood are also needed to ensure that montados thrive in the long term.

The ECOPOTENTIAL project is using indicators, such as Tree Cover Density or Leaf Area Index, to monitor changes in tree cover and to track tree mortality and weakening. This information, combined with data from the field, allows researchers to better assess the age structure of montados, pasture growth, and soil and water dynamics. With this knowledge, the state of large areas of montado can be regularly assessed using Earth Observation, farmers can be better advised, and management practices can be continuously improved in a quick and expedite manner.



This image shows tree cover density (2012) within Montados listed under the Natura 2000 Sites of Community Importance (SIC) of the Alentejo region, southern Portugal. Montados are dominant systems and key habitats in several of these sites, such as the SIC (Sites of Community Importance) of "Monfurado" and "Cabrela" approximately at the center of the image, and of "Moura/Barrancos" at the eastern side of the image. Montado systems located outside Natura 2000 Sites (not shown) are also under severe threat and have an important role as natural corridors for wild species.

Produced from ESA remote sensing data (Sentinel 2A). Processed by UPS-CESBIO for Ecopotential.



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Montados are High Natural Value wood-pasture systems characteristic of the Mediterranean basin. Cork oaks (*Quercus suber*) and holm oaks (*Q. rotundifolia*) are the dominant trees, forming pure or mixed stands with a savanna type structure.

Livestock production in pastures is one source of income provided by Montados. However, excessive livestock densities and overgrazing currently threaten this traditional wood-pasture system.



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Best practises in ecosystem management including managing soil, grazing and ecosystem structure are needed to respond to the threats facing Montados.



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