



Farming for Natura 2000

*Guidance on how to integrate Natura
2000 conservation objectives into
farming practices, based on Member
States good practice experiences*

Environment

ANNEX D - Management recommendations for each Annex I habitat type dependent on agricultural management

Бележка: Извлечение от приложението на природните местообитания срещащи се в България

- +++ Идентифицирани приоритетни за белошипата ветрушка местообитания, които се срещат в защитените зони - целеви по проекта
- ++ Идентифицирани второстепенни за белошипата ветрушка местообитания, които се срещат се в защитените зони - целеви по проекта
- + Идентифицирани третостепенни за белошипата ветрушка местообитания, които се срещат се в защитените зони - целеви по проекта

- +++ Идентифицирани приоритетни за белошипата ветрушка местообитания, които не се срещат в защитените зони - целеви по проекта
- ++ Идентифицирани второстепенни за белошипата ветрушка местообитания, които не се срещат в защитените зони - целеви по проекта
- + Идентифицирани третостепенни за белошипата ветрушка местообитания, които не се срещат в защитените зони - целеви по проекта

This table shows examples of recommendations for the management of each key Annex I habitat type dependent on agricultural management. Recommendations are *not* prescriptive and management should be adapted to the local conditions, using the best available local knowledge. Experts for each habitat are available in many Member States and should be part of the design process. This table should be used in conjunction with the table describing the key habitat types dependent on agricultural management in Annex A. References are listed for each habitat type, with full details below.

Agri dep = dependency on agriculture from Halada et al (2011):

f = Fully dependent on agricultural management,

p = Partially dependent because management either prolongs the existence of the habitat by blocking succession, or enlarges/maintains an enlarged area of habitat distribution,

p/n = Partially dependent only for some subtypes or over part of the distribution, or doubts remain concerning their dependence on agricultural management. Where Halada et al (2011) and Sipkova et al (2010) disagree, the Sipkova et al (2010) ranking is indicated in brackets.).

References:

Halada, L, Evans, D, Romao, C and Petersen, J-E (2011) Which habitats of European importance depend on agricultural practices? *Biodiversity and Conservation*, No 20, (11) pp2365-2378.




Sipkova,Z., Balzer,S., Evans,D. & Ssymanek,A. (2010) Assessing the conservation status of European Union habitats - results of the Community report with a case study of the German National Report. *Annali di Botanica*.



<http://laboratoriocritico.uniroma1.it/index.php/Annalidibotanica/article/view/9103>

Habitat and recommendations agricultural dependence	Management ecommendations				References
	Grazing	Cutting or Mowing	Hydrological	Other	
COASTAL AND HALOPHYTIC HABITATS					
1340 Континентални солени ливади p ++	Intensity: extensive, approx. 1LU/ha or less. Grazing intensity must be adapted to the site, Seasonality: July to October. No winter grazing. Folding: inappropriate.	Cutting can be alternative to grazing. Cutting and/or grazing should be sufficiently intensive to prevent <i>Phragmites</i> expansion. Seasonality: In Slovakia mowing before summer is recommended <i>except</i> in areas important for nesting birds, which should be mown only after mid-June/mid-July. In France a late cut is recommended. Fertiliser: may tolerate low input of manure (<30kg N/ha per year). Treatment of cuttings: should be removed. Scrub: occasional winter removal with hand mower if necessary.	Seepage or periodic flooding by saline groundwater must be maintained. No drainage permitted.	Only secondary habitat areas that were historically grazed or mown require management. Protection from conversion to arable is a high priority.	(Muller, 2002) and references therein (BfN, 2011; INPN, 2011; SOPSR, 2012)
1530 Панонски солени степи и солени блата p/n ++	Intensity: extensive. On Solonetz soils: 1 bovine/horse or 5–6 sheep/ha. On Solonchak soils, half this. Seasonality: grazing period should be based on precipitation in previous and current year (delayed if dry spring, earlier in wet spring	Mowing to eliminate weeds and expansive species (eg <i>Phragmites australis</i>) on pastures. Seasonality: before summer <i>except</i> in areas important for nesting birds, which should be mown only after end of breeding bird nesting season. Method: machinery	Dams, canals and ditches should be removed (where no threat to settlements) to restore hydrological regime.	The rare primary (undrained and ungrazed) alkali <i>Artemisia</i> steppes are not dependent on management. Protection from conversion to arable is high priority. Burning may be	(Šefferova et al, 2008a) (Valachovic et al, 2007) (SOPSR, 2012) (Batary et al, 2007a) (Batary et al, 2007b)

	<p>with early vegetation growth). Winter grazing should be prohibited.</p> <p>Stock type: traditional indigenous breeds of sheep, cattle, goats, horses or buffalo.</p> <p>Geese suitable in some areas. Stock type should be tailored to site.</p>	<p>appropriate only on dry soils.</p> <p>Treatment of cuttings: should be removed as soon as possible.</p> <p>Fertiliser: manure or fertiliser inappropriate.</p>		suitable.	
COASTAL SAND DUNES AND INLAND DUNES					
<p>2130</p> <p>Неподвижни крайбрежни дюни с тревна растителност (сиви дюни)</p> <p>p/n</p> <p>++</p>	<p>Depends on management history, vegetation trends, current land use, and nitrogen deposition. Some grey dunes should be left alone.</p> <p>General recommendations: Maintenance of a fine grained mosaic of open-sand, moss-, lichen- and low grass cover.</p> <p>Intensity: extensive, but enough to control scrub invasion and to maintain low level erosion dynamics.</p> <p>Seasonality: moderate stocking rates in summer, higher in autumn and winter. Either year round low intensity or seasonal higher intensity.</p> <p>Stock type: mix of species including sheep and horses; traditional/rare breeds often most effective. Rabbit grazing is an important influence, but reintroduction is often difficult.</p>	<p>Mowing occasionally used, but inferior to grazing. May be necessary to clear dense scrub prior to grazing.</p> <p>Treatment of cuttings: should be removed as soon as possible.</p> <p>Fertiliser: strictly no additional fertilisation (nutrient levels must be kept low). Measures to control impacts of eutrophication on vegetation may be necessary, such as turf removal / sod cutting of tall grasses, smallscale ploughing.</p> <p>Scrub: site-specific management. Mechanical or manual clearance with removal of cuttings, stumps and topsoil. Important to remove invasive species e.g. <i>Pinus spp.</i>, <i>Acacia</i> sp. pl., <i>Cortaderia selloana</i>,</p>	<p>The habitat relies on the natural dynamics of the dune system caused by sand drift from wave and wind action, which requires modification of fixed coastal protection structures such as sea walls, and integrated management of the whole dune system.</p>	<p>Fencing and path management to limit erosion due to trampling by visitors and vehicle damage (but some small-scale erosion may be beneficial).</p> <p>Restoration may involve removal of forestry plantations and/or artificial large-scale destabilisation. Protect reptile habitats when undertaking restoration measures (keep them careful & small-scale to maintain refuges). Open patches will also benefit <i>Bufo calamita</i>.</p>	<p>(INPN, 2011)</p> <p>(VV.AA, 2009)</p> <p>(Houston, 2008a) and references within</p> <p>(Sogaard et al, 2007)</p> <p>(Tahmasebi Kohyani et al, 2008)</p> <p>(BfN, 2011)</p>

	Other: use of animal medicines, particularly worm treatments, must be minimal to avoid affecting invertebrates.	<i>Carpobrotus edulis</i> , <i>Prunus serotina</i> , <i>Rosa rugosa</i>			
2340 Панонски вътрешноконтинентални дюни f +++	Intensity: more intensive during first few years of restoration, then at level sufficient to provide disturbance. Regime and stock type: variation in grazing pressure in order to maintain mosaic of open and closed swards.	Scrub: mechanical removal of scrub and trees may be necessary. Fertiliser: no fertiliser input; humus layer may be removed to prevent nutrient enrichment.		In some circumstances carefully managed winter burning may be suitable.	(Valachovic et al, 2007) (SOPSR, 2012)
TEMPERATE HEATH AND SCRUB					
4030 Европейски сухи ерикоидни съобщества F +	Intensity: extensive. Avoid eutrophication and grazing and trampling of sensitive plants from excessive stocking levels, including impact of wild grazers (deer etc.) However grazing needs to be sufficient to prevent tree colonisation and accumulation of woody material that has a high fire risk. Seasonality: avoid winter grazing	Scrub: tree removal where necessary, with removal of all plant material. Control invasive species including <i>Pteridium aquilinum</i> , <i>Rhododendron ponticum</i> , <i>Ulex galii</i> , <i>Gaultheria shallon</i> . Fertiliser: strictly no use of manure or fertiliser, prevent eutrophication from use of fertilisers on nearby land, create buffer zones.		In some circumstances carefully managed burning may be appropriate with post-burn monitoring. Very sensitive to uncontrolled burning which produces large areas of even-aged vegetation and loss of plant and invertebrate species. Manage human pressures to avoid erosion from recreational activities, and wild fire risk.	(Garcia et al, 2012) (Harris et al, 2011) (Newton et al, 2009) (VV.AA, 2009)
4060	Not recommended.	Scrub: tree removal where		Control of invasive	(VV.AA, 2009)


Алпийски и бореални ерикоидни съобщества p/n 		necessary, with removal of all plant material. Fertiliser: strictly no use of manure or fertiliser, prevent eutrophication from use of fertilisers on nearby land, create buffer zones		species may be necessary.	(JNCC, 2007b) (INPN, 2011) (Martin & Lopez, 2002) (Valachovic et al, 2007) and references therein
4090 Ендемични оро-средиземноморски съобщества от ниски бодливи храстчета p 	Habitat very variable and conservation recommendations will differ between sites. Intensity: extensive is optimum for many subtypes. Livestock type: sheep preferred.	Scrub: scrub clearance may be necessary and should be followed by extensive grazing.		Reintroducing traditional burning may be appropriate in some areas but should be based on management strategies and carried out carefully where there is low risk of creating wildfires.	(INPN, 2011) (VV.AA, 2009) (Beaufoy et al, 2011)
SCLEROPHYLLOUS SCRUB (MATORRAL)					
5130 Съобщества на <i>Juniperus communis</i> върху варовик P 	<i>Juniperus</i> recruitment requires a carefully adjusted grazing regime to create and maintain the habitat mosaic. Intensity: grazing should be sufficient to maintain short sward and bare patches. Heavy grazing will prevent seed germination, but in some climates grazing needs to be moderately high to stop overgrowth of scrub and loss of grassland. Seasonality: intermittent grazing may be ideal eg with removal period of 10 years.	Scrub: in the absence of grazing, scrub removal will be necessary.		Carefully managed soil disturbance and weeding may be beneficial. Burning is usually not an option because of high risk of fire getting out of control. Propagation of juniper seedlings in nursery may improve recruitment.	(INPN, 2011) (VV.AA, 2009) (BfN, 2011; Valachovic et al, 2007) (National Parks and Wildlife Service, 2008) (JNCC, 2007b) (Valachovic et al, 2007) (Beaufoy et al, 2011) (Lotman, 2004) (Ministerie van Economische Zaken, Landbouw


	Other: use of animal medicines, particularly worm treatments, must be minimal to avoid affecting invertebrates. Supplementary feeding of livestock will negatively affect conservation				en Innovatie, 2012) (SOPSR, 2012) (Cooper et al, 2012)
5210 Храсталаци с Juniperus spp. p/n 	Intensity: moderate. Should be controlled by detailed 'pasturage plans' based on accurate field surveys of habitat. Overgrazing can result in trampling of juniper seedlings. Seasonality: preferably limited to winter. Livestock type: sheep and goats are preferable to limit compaction and due to their grazing habits.	Scrub: invading scrub and trees should be cleared periodically. Older juniper should be pruned where this may encourage younger saplings.		Fire prevention may be necessary in high risk areas. Subtype 'primary matorral' does not require active management	(INPN, 2011) (VV.AA, 2009) (Calaciura and Spinelli, 2008a) (Beaufoy et al, 2011)
NATURAL AND SEMI-NATURAL GRASSLAND FORMATIONS					
6110 Отворени калцифилни или базифилни тревни съобщества от Alysso-Sedion albi p/n 	Only secondary habitat areas that were historically grazed require management. Intensity: extensive. Livestock type: cattle. Grazing by rabbits is often crucial. Regime: grazing should be controlled; vegetation is favoured by a controlled level of trampling. A rotational regime may be suitable. Other: use of animal medicines, particularly worm treatments, must be minimal			Habitat occurs in small patches so management must be integrated with management of the wider landscape.	(INPN, 2011) (VV.AA, 2009) (BfN, 2011)

	to avoid affecting invertebrates. Supplementary feeding of livestock will negatively affect conservation status.				
6210 Полуестествени сухи тревни и храстови съобщества върху варовик (Festuco Brometalia) (*важни местообитания на орхидеи) f (or p/n) +++	Intensity: low/moderate extensive. Stocking rates vary depending on length of grazing period and rate of sward production in different regions. Stock type: cattle, horses, sheep or goats may be used. Should be tailored to site conditions. Alternating stock types at a site where this is not usual will have negative impacts. Seasonality: delaying grazing until end of growing season beneficial for biodiversity, except on sites dominated by bracken where it may help break up dense stands. Winter grazing may be more effective. In some areas, traditional transhumance grazing should continue. Characteristic plant species require bare patches in the sward to germinate, so a certain amount of sward erosion in winter is beneficial. Other: use of animal medicines, particularly worm	Grazing usually preferable for invertebrates, but where habitat was traditionally mown, or where grazing is not practicable, extensive mowing may be more appropriate (eg steep subalpine meadows). Frequency: usually single cut, but varies from every two years to twice a year, depending on productivity. Seasonality: late in the year, after bird breeding and plant seed-setting. Timing will vary depending on region and nature of wildlife interest, and will be earlier for fertilised meadows with greater yields. Regime: cutting should be staggered; ideally, 5–10% of area left uncut until following year and different area left each year. Cut to about 8–10cm. Treatment of cuttings: should be removed immediately. Fertiliser: no fertilisation Method: cutter-bar mowers are more desirable than		A combination of mowing and grazing is not desirable as it does not favour the characteristic species related to one or other of the practices. Control or eradication of invasive species <i>Robinia pseudoacacia</i> , which threatens <i>Artemisia pancicii</i> populations in the Czech Republic.	(INPN, 2011) (VV.AA, 2009) (Calaciura and Spinelli, 2008b) (Beaufoy et al, 2011) (Crofts and Jefferson, 1999) (Harris et al, 2011) (Muller, 2002) (Sogaard et al, 2007) (Baranska et al, 2009) (BfN, 2011) (Valachovic et al, 2007)

	<p>treatments, must be minimal to avoid affecting invertebrates.</p> <p>Supplementary feeding of livestock will negatively affect conservation status.</p>	<p>rotary mowers.</p> <p>Scrub: removal may be necessary but some should be left for diversity. Large stands should be reduced by staggered yearly cutting.</p>			
<p>6220</p> <p>Псевдостепи с житни и едногодишни растения от клас Thero Brachypodietea</p> <p>F</p> <p>+++</p>	<p>Grazing regime varies between habitat sub-types⁹⁵.</p> <p>Subtype 1: Intensity: 0.2–0.4 LU/ha/year (or higher to control woody vegetation) Seasonality: Spring or autumn Stock type: sheep or goats Regime: shepherding preferable Other: limited supplementary feeding.</p> <p>Subtype 2: Intensity: 1 LU/ha/year (on closely related dehesa systems, much lower stocking rates needed; 0.2–0.3 LU/ha/year). Seasonality: grazing from midautumn to late summer. Stock type: sheep or cattle, sometimes goats and occasionally horses. Regime: shepherding preferable Supplementary feeding: cattle require relatively high rates of supplementary feeding.</p> <p>Subtype 3:</p>	<p>Scrub: mechanical removal of woody vegetation may be necessary, particularly for initial restoration. Should repeat every 3–5 years and be carried out in small, irregular plots to increase structural diversity.</p> <p>Fertiliser: use of fertilisers (particularly N and K) and pesticides should be restricted.</p>		<p>In some circumstances carefully controlled burning management may be used in combination with grazing and mechanical scrub removal.</p> <p>Maintenance of traditional mosaic distribution of agricultural plots.</p> <p>Field margins, beetle banks and fallow land may be beneficial.</p> <p>Silvicultural treatment should be used in afforested areas.</p>	<p>(INPN, 2011) (VV.AA, 2009) (San Miguel, 2008) (Beaufoy et al, 2011) (Fuller et al, 2011)</p>

	<p>Intensity: 0.1 LU/ha/year (or up to 0.5 LU for short period to remove woody vegetation).</p> <p>Seasonality: usually spring, sometimes autumn depending on onset of rain.</p> <p>Stock type: sheep or goat</p> <p>Regime: shepherding preferable</p> <p>Regimes should be tailored to local conditions and intensity should not be increased above traditional levels.</p>				
<p>62A0</p> <p>Източно субсредиземноморски сухи тревни съобщества</p> <p>F</p> <p>+++</p>	<p>Intensity: extensive grazing, sufficient to prevent invasion by tall herbs such as <i>Peucedanum cervaria</i>.</p>	<p>Mowing 1/2 times per year.</p> <p>Fertiliser: no fertilisation.</p> <p>Scrub: Regular cutting of trees and shrubs (eg <i>Cottinus coggygia</i>) is necessary.</p>			<p>(EEA, 2011; Kaligarić et al, 2003)</p>
<p>6510</p> <p>Низинни сенокосни ливади</p> <p>F</p> <p>+++</p>	<p>Management should be adapted to local conditions, meadow vegetation subtype and historic management.</p> <p>Intensity: low (sensitive to overgrazing by cattle).</p> <p>Regime: after hay cutting. Grazing for a short period in spring may improve the germination rate for some spring-germinating plants by creating small patches with open soil.</p> <p>Other: use of animal medicines, particularly worm treatments, must be minimal</p>	<p>Seasonality: no cut before mid-June to allow bird nesting and plant seedsetting.</p> <p>Timing: Rotational or staggered management at the landscape scale allows animal species to find refuges from cutting on any one patch, and also allows species that benefit from earlier or later cuts to co-exist. A rotating 30% of the area should be left unmown.</p> <p>Fertiliser: normally no fertilization, especially not in areas that have not been</p>		<p>Intensification reduces species richness but moderately intensive management of some meadow types is acceptable.</p>	<p>(VV.AA, 2009) (Muller, 2002) (ICNB, 2006) (Cop et al, 2009) (INPN, 2011) (Zechmeister et al, 2003) (Carlin et al, 2010) (Crofts & Jefferson, 1999) (Muller, 2002) (BfN, 2011; Cizek et al, 2012)</p>

	to avoid affecting invertebrates. Supplementary feeding of livestock will negatively affect conservation status.	fertilized previously. In northern Europe all fertilization is considered as negative for habitat quality. In eastern Europe some meadows have historically received small amounts of manure, but this should be carefully planned based on historical management and vegetation subtype. Other fertilisers and slurry must be avoided. Other: mowing should control Marsh horsetail (<i>Equisetum palustre</i>).			
6520 Планински сенокосни ливади F 	Stock type: traditional livestock preferable. Seasonality: in spring and autumn; preferably sheep in spring and cattle in autumn. Regime: alternation of mowing and grazing possible.	Frequency: one cut per year, except for some mesophile subtypes which can be mown 2–3 times annually. Rotational or staggered management at the landscape scale allows animal species to find refuges from cutting on any one patch, and also allows species that benefit from earlier or later cuts to co-exist. A rotating 30% of the area should be left unmown. Fertiliser: normally no fertilization, especially not in areas that have not been fertilized previously. Some meadows can tolerate occasional low amounts of		Regulate and control tourism impacts eg through signposting, fencing and path management. Prevention and control of invasive species may be necessary. Wild boar populations may need to be controlled (eg Spain).	(INPN, 2011) (Muller, 2002) (Jefferson, 2005) (VV.AA, 2009) (Sarbu et al, 2004) (Cop et al, 2009) (Baur et al, 2006) (Crofts & Jefferson, 1999) (Dolek and Geyer, 1997) (Jefferson, 2005) (Muller, 2002) (BfN, 2011) (Valachovic et al, 2007)

		manure, but this should be carefully planned based on historical management and vegetation type. Other fertilisers and slurry must be avoided.			
ROCKY HABITATS					
8230 Силикатни скали с пионерна растителност от съюзите Sedo-Scleranthion или Sedo albi-Veronicion dillenii p/n 	Only secondary habitat type needs grazing (habitat may be the result of overgrazing of acidic grassland). Intensity: very extensive Type: sheep and/or goats, cattle, also wild grazers eg chamois or ibex Regime: needs to be grazed together with the rest of the habitat mosaic of which it is part				(VV.AA, 2009) (Sohlman, 2007) (Ministerio dell'Ambiente e della Tutela del Territorio e del Mare, 2008) (Valachovic et al, 2007)