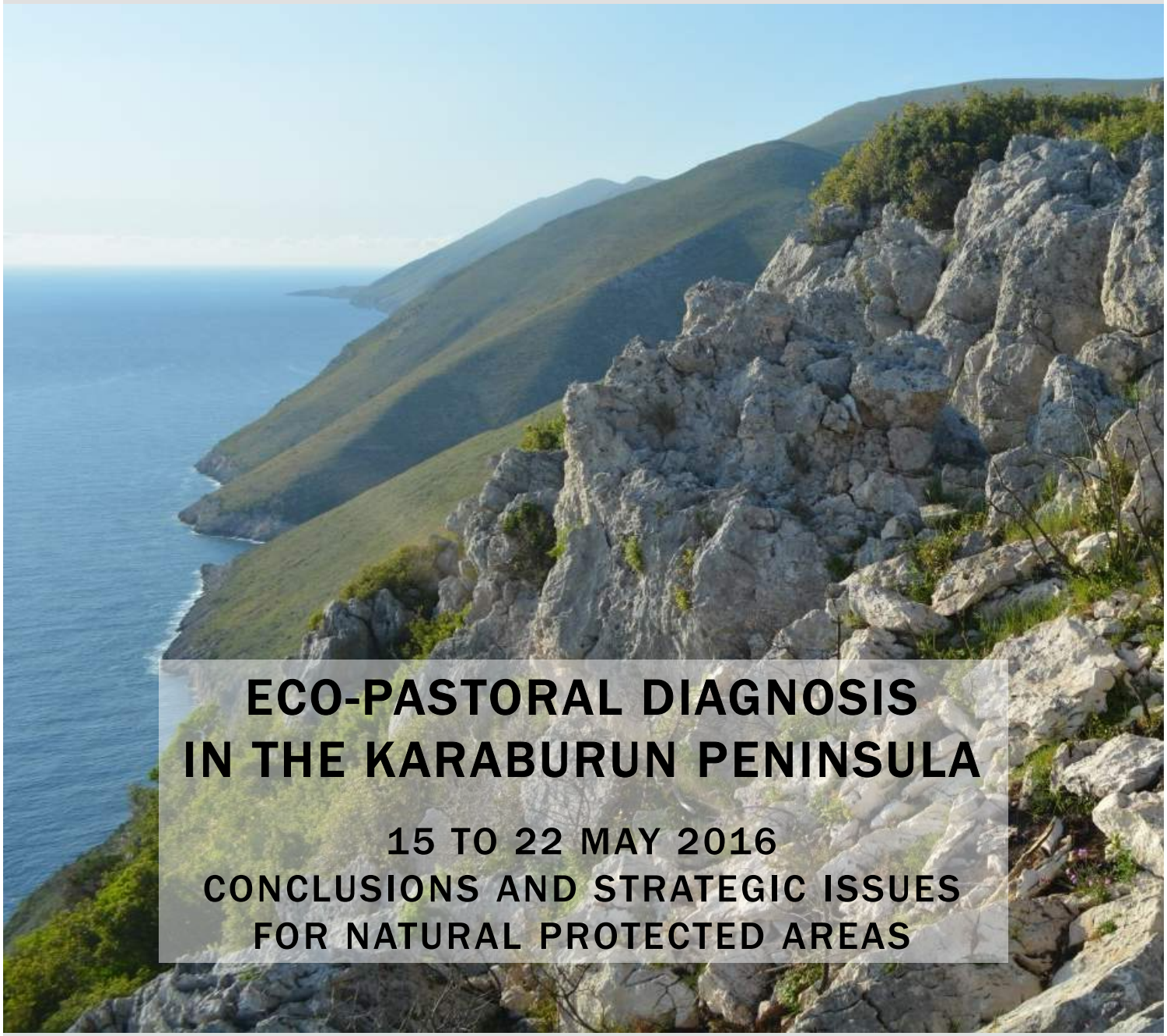

ECO-PASTORAL DIAGNOSIS IN THE KARABURUN PENINSULA

15 TO 22 MAY 2016
CONCLUSIONS AND STRATEGIC ISSUES FOR NATURAL PROTECTED AREAS

Claire Bernard*, Alice Garnier*, Chloé Lerin**, François Lerin*, Julien Marie***

(*Ciheam Montpellier, **Benevolent intern, ***Parc National des Cévennes)

Ciheam Montpellier, July 2016

BiodivBalkans Project (2012-2016):

Funded by : *Implemented by :*

In partnership for the Ecological and Pastoral Diagnosis Method with:

Pastoralism & Biodiversity Management in Protected Areas
Strategic proposals from an Eco-Pastoral Diagnosis in the Karaburun Peninsula, Vlorë County
May 2016

Executive summary

Claire Bernard, Alice Garnier, Chloé Lerin, François Lerin, Julien Marie

This short report is produced within the frame of the BiodivBalkans project (2012-2016). This project is dedicated to foster rural development in mountainous regions through the construction of Signs of quality and origin (SIQO). One of its main outputs was to shed the light on the pastoral and localized livestock systems in Albania and in Balkans' surrounding countries, as a central issue for biodiversity conservation through the maintenance of High Nature Value farming systems. They are an important component of European agriculture not only for the conservation of biodiversity, but also for cultural heritage, quality products, and rural employment.

The core experience of this project was (and still is) the creation of a Protected Geographical Indication on the "*Hasi goat kid meat*" based on stakeholders collective action and knowledge brokering. During that learning process and to effectively enforce the relation between rural development and biodiversity conservation, we used an original Ecological and Pastoral diagnosis method, imported from an EU Life+ program (Mil'Ouv, 2013-2017). This method seeks to improve pastoral resources management in a way that is both environmentally sustainable and efficient from an economic perspective. This method was pioneered in France, then adapted and tested in Albania, in the Hasi Region first (2015), and this year on the Karaburun peninsula (2016). In both cases, an in-depth analysis of the local livestock's systems is preceding the diagnosis implementation.

Pastoralism is a pretty complex issue in that sense that it deals with a high diversity of situations which need local diagnosis at different scales with a decisive implication of local actors, especially the livestock farmers. They are key players in building adequate knowledge of these local situations: problems, opportunities, trends and threats… The originality of this Ecological and pastoral diagnosis method is precisely to work at different scales (from the pastoral massif to the ecological topo-facies) and to elaborate a practical diagnosis with a trio composed by: a naturalist, a livestock specialist and the breeder himself/ or herself.

Our main objective with these field-work notes is to convince local and national institutions in charge of the Albanian natural Protected Areas (PA) that this participatory & multi-scale method is a strong way to enhance & conceive inclusive "management plans". Indeed, most of the protected areas in Albania and in the Mediterranean regions of the Balkans include a large share of mountainous and hilly territories where pastoral activity is a major (if not essential) element of the rural and agricultural life and economics, and as such of the environment management.

Five major points can be highlighted for further discussions with the interlocutors in charge of the protected areas of Karaburun. They are based on the "evidences" presented in the following slides and commentaries on this document.

1. Recognition of the pastoral issue and its positive contribution to the sustainable management of protected areas.

European foresters and naturalists have a long "tradition" of distrust of pastoral activities, accused of soil and natural vegetation degradations mainly through over-grazing and pastoral fires (cf. commentaries from previous assessments on Karaburun peninsula's biodiversity). But this appreciation is changing and, the positive effects of grazing and pastoralism are more and more recognized. These positive effects are mainly: the use of natural feed resources, the production of high quality products, the maintenance of open landscapes - and related natural habitats of environmental interest -, the control of shrubs and *maquis* avoiding massive Mediterranean fires, the preservation of semi-natural biodiversity, the conservation of cultural and natural heritage (especially in that last case, the ecological and patrimonial landscapes of Mediterranean pastoralism)…

2. Establishment of an eco-pastoral baseline to assess the environmental dynamics

Due to the lack of previous interest in the pastoral issue, it is necessary to establish an agro-silvo-pastoral baseline for each local situation at the level of the PA in order to have benchmarks for long term management of these protected areas. This has to be done with naturalists, livestock specialists and the shepherds & livestock farmers themselves. This combination only is able to collect, discuss and appreciate the necessary elements to assess on the long run evolutions in the vegetation dynamics in their relation with pastoral activities. Short, medium and long term history of the natural and semi-natural vegetation is not easy to establish. We have to take advantage of the livestock farmers' knowledge and memory of the elders, coupled with land cover/landscape analysis, to stylize these evolutions. Livestock and naturalist specialists have to guide the baseline assessment and contribute to build each scale of diagnosis with complementary skills.

3. Enhancing zoning plans thought a specific diagnostic adapted to the different scales

Generally, PA Management plans breakdown the territory into smaller units of management (subdivisions). The Ecological and Pastoral Diagnosis approach can enhance this specification process by defining effective management units (in collaboration with the livestock farmers) as a basis to manage (mainly thought grazing pressure, selective grubbing up, controlled fires, etc.) the vegetation dynamics, monitored at the level of "topo-facies" (based on naturalist assessments). Specific pastoral interventions have to be designed and adapted to the diversity of the natural habitats (e.g. riparian formations, scrublands at different stages of evolution, opened forests, etc.) and take into account the other/complementary uses and purposes of the natural resources by rural communities (like for example picking of aromatic and medicinal plants). This detailed work shall permit to have a better zoning and its inclusion in the baseline of each PA is a fundamental element of the effectiveness of the management and the scientific and observational output we can expect (to be networked at national and European level).

4. Building a co-elaborate diagnosis of the eco-pastoral situation and its "translation" into the management plan

The trio's work program has to be framed by the institution in charge of the management of the PA. Furthermore, some elements of diagnosis have to be discussed and shared with the PA users (if not by all).

It is the case of under- grazing and/or over-grazing: the diagnosis has to be done at very local scales with a common understanding why and how we are facing this situation. Possible solutions have to combine naturalist and livestock farmers' interests to find the best options for more sustainable and desirable solutions. Another example is - in the Karaburun case - the question of pastoral fires. These are strictly prohibited by the government through a national regulation. However, agronomists, livestock specialists and even foresters (and obviously the farmers) recognized that the landscape ecology of those PAs is produced by the long standing practice of pastoral fires (during the ancient times and also during the communism period). These pastoral fires are necessary to keep the environment open and to regenerate the vegetation and the pastoral ecosystem (it is widely recognized as an useful practice in most of the Med countries). This situation – need of pastoral fires and a strict ban on the practice by national regulation – leads to the worst "solution": instead of controlled pastoral fires in winter, illegal and then uncontrolled fires in summer, when the danger of big fires is the most important. A common diagnosis and the elaboration of a method to establish controlled pastoral fires are an important task for the authorities of the PA – which have to plead the issue to the national authorities.

5. Creating the conditions of collective action for the sustainable management of the commons.

All these recommendations bring us to the question of the formal organization of this stakeholder situation. In France, but also in other Med (and non-Med!) countries the challenge of this participation of the livestock farmers to the management of PA, leads to the institutionalization of "Pastoral pacts". In a lot of cases, pastures and rangelands are "commons" – State or Communal property. Even if there are private owners, the lack of fences and clear boundaries calls for a strong coordination between actors (especially in Albania where the status of property and rights on these lands are not precise, changing and variable according to the local situation). "Pastoral pacts" (or the equivalent) are a way to bring together all the stakeholders (shepherds, farmers, breeders, owners, institutions) to elaborate a medium-term strategy and discuss the livestock and environmental situation together. Management of the commons needs stability in partnership (owner/user): if there is none it is obvious that measure of conservation and change in pastoral practices (which benefits are, at the best, in the medium term) are not going to be implemented by the "immediate user".

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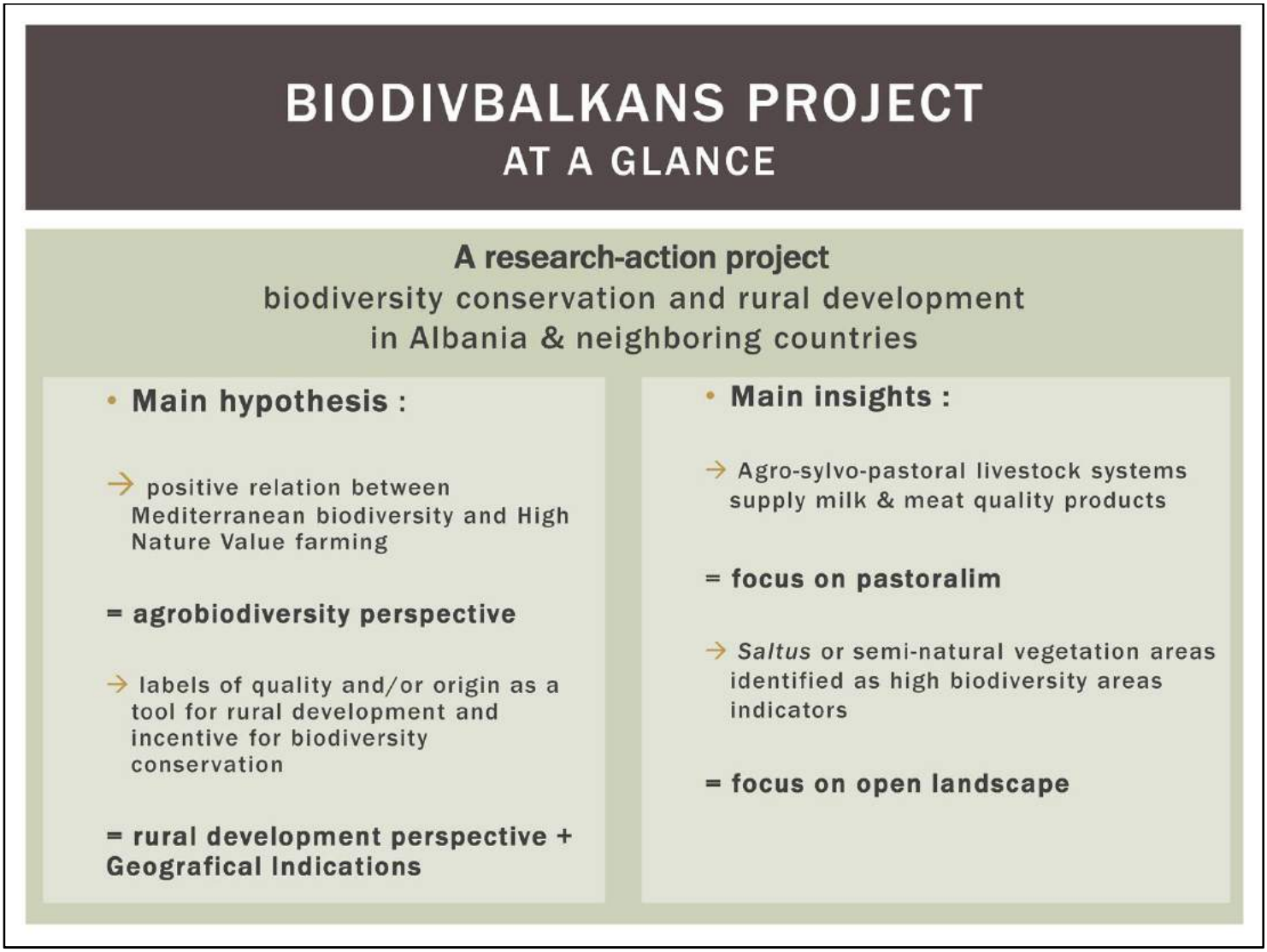
* Karaburun means, in Turkish, « dark cape ». There is an other Karaburun peninsula in Turkey, close to Izmir, today studied by a young colleague (Heval Yildirim) doing her PHD in CIHEAM-IAMM on ecosystemic services.

To quote this document:
Bernard-Mongin C., Garnier A., Lerin C., Lerin F., Marie J.(2016). Eco-pastoral diagnosis in the Karaburun Peninsula, 15 to 22 May 2016. Conclusions and strategic issues for natural protected areas. Montpellier (France): CIHEAM-IAMM. 58 p. Document réalisé dans le cadre du programme BiodivBalkans et en partenariat avec le programme Life+ Mil'Ouv et le Parc National des Cévennes.

Available electronically on the CIHEAM-IamM website:
http://www.iamm.ciheam.org/ress_doc/opac_css/index.php?lvl=notice_display&id=36867

PART 1

CONTEXT & METHODOLOGY



BiodivBalkans

BiodivBalkans program, funded by the French Global Environment Facility (FFEM), seeks to promote biodiversity conservation and sustainable development of the Balkan mountains. The program is implemented by MADA (Mountain Area Development Agency - Albania) and the CIHEAM-IAMM (Montpellier, France), in particular for the think tank. (http://www.iamm.ciheam.org/fr/research/projects/one_programme?programme=biodiversity-conservation-and-valorization-sustainable-rural-development-in-balkan-mountains&id=18)

High Value Nature Farming

Definition: kind of agriculture strongly associated with a rich biodiversity, through complex interactions between species and farming practices (Definition of EFNCP, http://www.high-nature-value-farming.eu /).

References:

Bernard C., Boutonnet J.-P., Garnier A., Lerin F., Medolli B. (2014). Quality labels: a way to support the development of pastoral resources? Methodological insights based on the monographic analysis of Hasi Region: Northern Albania. In : Baumont R., Carrère P., Jouven M., Lombardi G., Lopez-Francos A., Martin B., Peeters A., Porqueddu C. (eds.). *Forage resources and ecosystem services provided by mountain and mediterranean grasslands and rangelands*. Zaragoza (Espagne) : CIHEAM-IAMZ. p. 637-640. (Options Méditerranéennes : Série A. Séminaires Méditerranéens, n. 109).

Garnier A. (2013). *Analyse descriptive d'un terroir du Nord de l'Albanie : le Has. Systèmes d'élevage et ressources pastorales.* Master 2 : co-habilitation CIHEAM-IAMM, Université Montpellier III. 76 p.

Garnier A. (2014). *Pratiques d'élevage et diversité paysagère dans le Has albanais.* Montpellier (France) : CIHEAM-IAMM. 118 p. (Master of Science, n. 144).

Medolli B. (2013). *Analyse descriptive d'un terroir au Nord de l'Albanie : le Has. Mise en marché et dynamiques des filières des produits animaux.* Master 2 : co-habilitation CIHEAM-IAMM, Université Montpellier III. 78 p.

Medolli B. (2014). *Analyse stratégique d'une filière dans la perspective de la création de signes de qualité et d'origine. Les productions animales dans le Has albanais.* Master of Science : CIHEAM-IAMM. 90 p.

Mil'Ouv Project and ecological and pastoral diagnosis method

Mil'Ouv is an European Union LIFE+ project. Its objective is to improve the use of natural resources in stock farming and the conservation status of agro-pastoral habitats in Mediterranean regions. The Mil'Ouv project falls within the "Information and communication" section of the European Union's LIFE+ fund. The project, coordinated by the Conservatoire of Natural Spaces Languedoc Roussillon (CEN L-R), is implemented in partnership with the Cévennes National Park (PNC), the Stock Farming Institute (Idele) and SupAgro Florac. It began in September 2013 and is scheduled to end in December 2017.

Mil'Ouv helps develop awareness of the importance of eco-pastoral management of open landscapes. It aims to improve pastoral breeding of natural resources as well as to maintain agro-pastoral habitats (especially "open landscapes") in Mediterranean regions. Based on a sample of 130 French farms, the program has designed a method to carry on-site diagnosis, called "eco-pastoral diagnosis". The aim is to improve the management of pastoral resources in a way that is both sustainable from an environmental point of view and more efficient from an economic perspective.

The original Mil'Ouv method stems from two main observations: (1) the decline of pastoral activities in France and in other Mediterranean and European regions is causing landscape closure, a phenomenon that entails degradation of opened landscapes biodiversity and increases fire risk (Lepart et al., 2007); (2) breeders that are facing landscape closure and encroachment (i.e. decreasing forage resource) try to overcome this trend and ask for innovative and participatory devices to find solutions (Buffin et al., 2014).

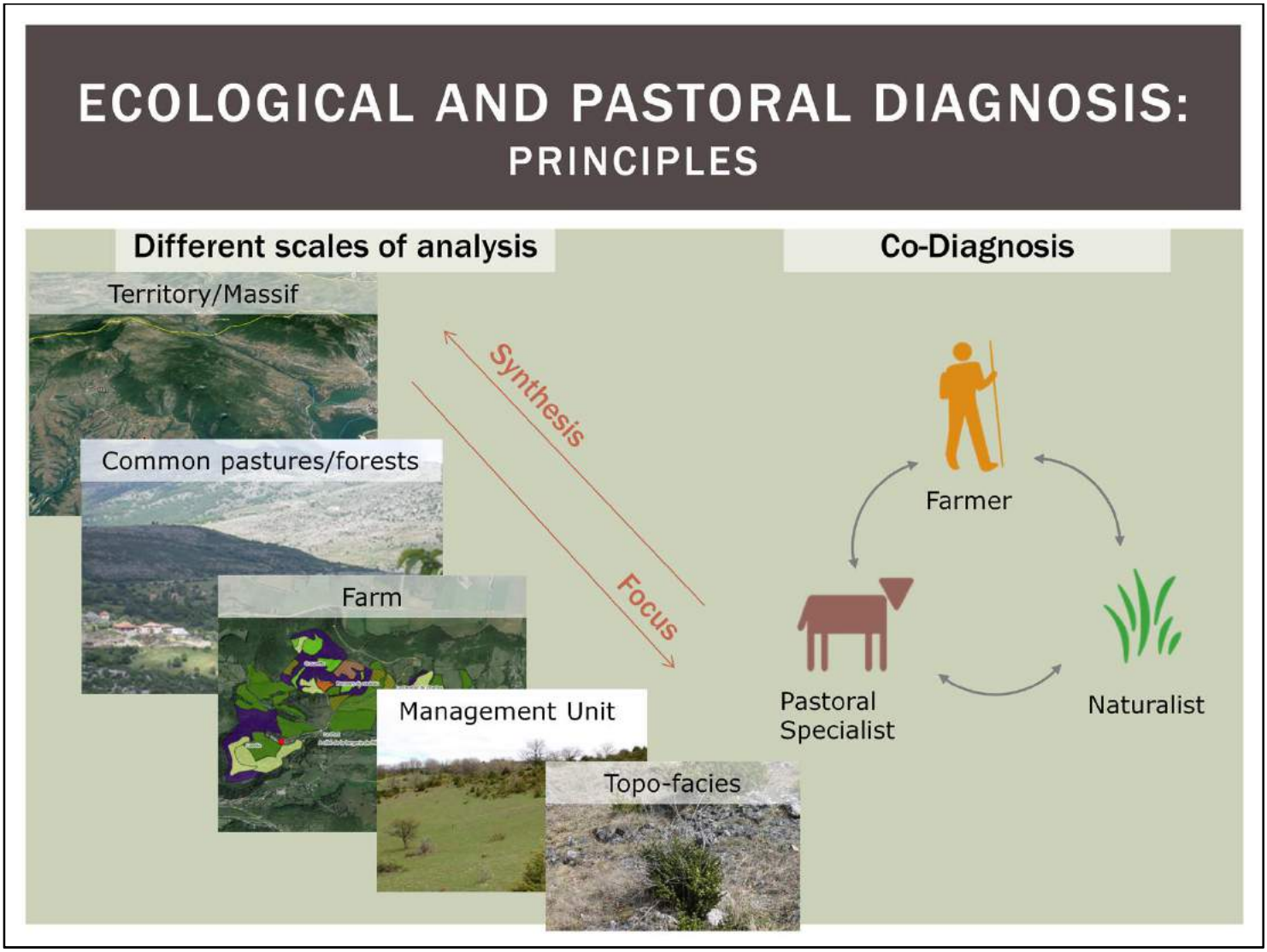
In its French application, the Mil'Ouv method develops the following steps:

(1) a global understanding of the farm functioning, based on a detailed interview with the stock farmer;
(2) a field diagnosis to understand the interactions between pastoral practices and vegetation dynamics at different scales;
(3) a monitoring phase, to assist farmers in their management choices and evaluate the impact of changing breeding practices, both on the environment and on the farming system.

References:

Buffin C., Gonin A., Schrader C. (2014). *Programme LIFE Mil'Ouv. Compilation et évaluation des méthodes et outils de diagnostic et d'évaluation éco-pastorale de la gestion des milieux ouverts méditerranéens.* Projet tutoré de Licence professionnelle GENA : SupAgro Florac (France). 101 p.

Lepart J., Marty P., Klesczewski M. (2007). Faut-il prendre au sérieux les effets du paysage sur la biodiversité? In: Berlan-Darqué M., Luginbühl Y., Terrasson D. (eds.). *Paysages : de la connaissance à l'action.* Versailles : Quae. p. 29-40.



- ***Different scales of analysis***

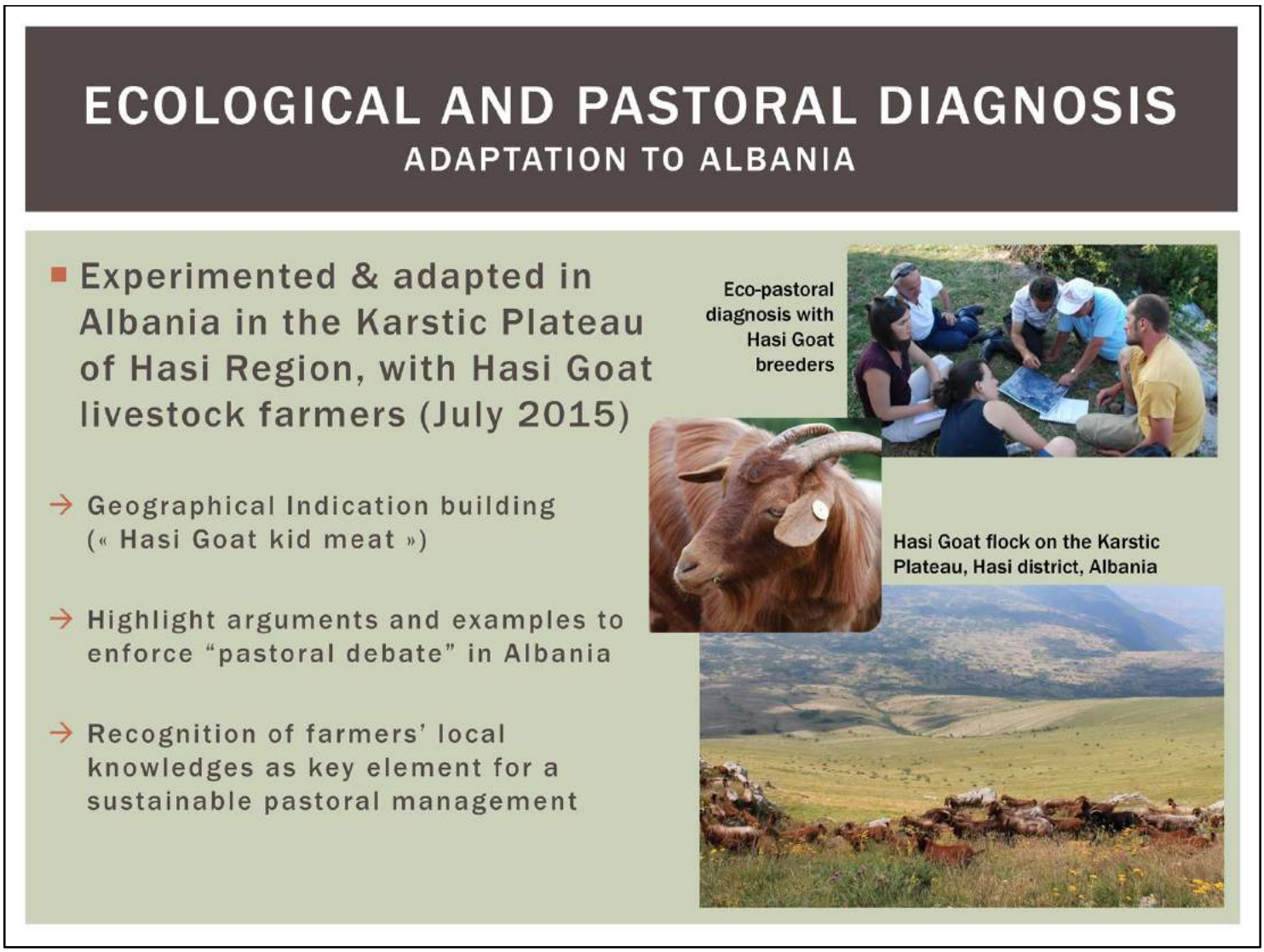
The second originality of the method is to integrate several scales of analysis. It enables to become more specific on environmental stakes and propose appropriate adaptations of pastoral practices at the farm scale as at the massif/territory scale: grazing periods/grazing paths, swidden, enclosure creation, etc.

→ ***Including massif/territory level***

The original diagnostic practiced in France by the Mil'Ouv integrates three levels of analysis: farm level, management unit level and homogenous ecological plot level ("topo-facies"). In Albania, where livestock farming systems are both highly diversified and based on the use of natural resources, the analysis of agrarian landscapes is necessary, but there is a low level of information available on local pastoral situations. The macro pastoral-ecosystem has to be informed in each situations to create baselines – crucial to interpret evolutions threats and opportunities. In Albanian, where elements of these baselines are dispersed and incomplete, a preliminary identification and description of the local livestock farming system related to particular landscapes is needed. As probably all pastoral systems in Albania are related to mountainous areas, we choose to call this level "pastoral massif level".

- ***Co-diagnosis → integrate the breeder in the approach***

The eco-pastoral diagnosis developed by Mil'Ouv program incorporates agricultural and environmental aspects in a complementary manner as the diagnosis is fed by the crossed perspectives of two technicians: a naturalist and a "pastoralist" (stock farming technician), and the collaboration of the farmer; Only he will be able to know the state, availability and access of natural resources at the farm scale. In that line, the idea is to co-construct strategies and propositions to optimize the use of resources and the sustainable management of pastoral areas. The approach is therefore jointly developed and coherent: it doesn't only take account of the ecological and pastoral issues, but also the needs and objectives of the stock farmer on his farm.



Adaptation and experimentation in the Hasi region

A multidisciplinary franco-albanian team worked to adapt and test the method in an Albanian context during a mission to the Hasi region (North-East Albania) conducted in July 2015.

This mission was part of the building of a Protected Geographical Indication (PGI) on a kid goat meat from a local breed (Hasi Goat). The eco-pastoral diagnosis was a step to identify eco-pastoral elements to be included in the Code of Practice.

Secondly, it provided additional environmental and economic elements emphasising the vital importance of the pastoral question in Albania:

- → *Arguments in favour of an agricultural policy taking account of these forms of agriculture with "high nature value".*
- → *Elements enabling to advocate participatory support mechanisms for the agro-ecological practices so common in the country and so necessary to the development of mountainous zones (and to extract the full economic potential of the products derived from these practices). Pastoral systems are supplying the majority of Albanian meat (quality meat, even if traceability is low), and ensures the country self-sufficiency for most of livestock products.*

Experimenting with the eco-pastoral diagnostic of the Life+ Mil'Ouv program has thus enabled to refine the arguments for including the analysis and defence of agro-sylvo-pastoral systems at the heart of comprehensive territorial strategies and making more efficient use of the aid and pre-accession tools and programs.

References:

Garnier A., Bernard-Mongin C. (collab.), Dobi P. (collab.), Launay F. (collab.), Lerin F. (collab.), Marie J. (collab.), Medolli B. (collab.), Sirot B. (collab.). (2016). *Adaptation of the Life+ Mil'Ouv eco-pastoral diagnostic method to the Albanian context.* Tirana (Albanie) : Mada (Moutain Area Development Agency). Montpellier (France) : CIHEAM-IAMM. 99 p. Document réalisé dans le cadre des programmes BiodivBalkans et Life+ Mil'Ouv.

Available in French, Albanian, English on the CIHEAM-IAMM website: http://www.iamm.ciheam.org/ress_doc/opac_css/index.php?lvl=notice_display&id=36838

Garnier A., Bernard-Mongin C., Dobi P., Launay F., Lerin F., Marie J., Medolli B., Sirot B. (2016). Adaptation of an ecological and pastoral diagnosis to the Albanian context: Challenges and lessons learned. In: Casasus I., Lombardi G. (eds). *Mountain pastures and livestock farming facing uncertainty: environmental, technical and socio-economic challenges.* Zaragoza (Espagne): CIHEAM/CITA. p.251-255 (Options Méditerranéennes, Série A: Mediterranean Seminars, No. 116)

ECOLOGICAL AND PASTORAL DIAGNOSIS IN KARABURUN PENINSULA

- **WHY ARE WE HERE ?**
  - Second test of the « Ecological and Pastoral Diagnosis» in Albania
- **WHAT ARE OUR OBJECTIVES ?**
  - Gain in-depth understanding of pastoral practices
  - Better understand environmental issues and interests of the area
- **WHAT DO WE EXPECT ?**
  - Provide local & technical references (baselines elements)
  - Discuss conflicts and complementarities on agro-pastoral and environmental issues
  - Propose perspectives for a better integration of pastoral activities in the Protected Areas management plans

Sheep grazing in the Ravenë plateau, Karaburun Peninsula, Albania

Goat grazing on the Dardhës Mount slopes, Karaburun Peninsula, Albania

The BiodivBalkans program decided in its 6th Steering Committe (July 2015) to expand the most consolidated product worked for GI building process within the project, the livestock-pastoral products. To expand the possibilities of creating GI in this sector, the Steering Committe recommended to open a new field analysis, in a complete different situation (than the Hasi region) in the South of the country. We chose the Vlorë region where a goat breed is well known (as the Dukat breed) and began a medium size field –study in the region. Vlora was chosen because of the presence of this breed, but also because of the important seasonal touristic market on the coast line… and the all-year long market of the 4th city in the country (around 100 000 inhabitants).

Steps of the study:

Livestock systems and markets in Dukat and Lumi i Vlores valleys

1 month (Mars-April 2016), A. Garnier, B. Medolli

- *basic diagnosis of the territory: geomorphology, social organisation, history, economic activities, etc.*
- *signification of the « Dukat goat breed »: identification, repartition area, practices, collective actions, etc.*
- *livestock systems in these regions: flocks, breeds, pastoral practices, historic evolution of these systems, marketing, etc.*

→ *Finally, we decided to focus on the Dukat valley because of: (1) illegal plantations in the Lumi i Vlores valley, making less easy the possibility of a field ecological diagnosis! (2) the interest for our eco-pastoral diagnosis shown by local actors of environment protection.*

Focus on Dukat Valley and the Karaburun peninsula (spadework for the eco-pastoral diagnosis)

1 month (April-May 2016), A. Garnier, C. Lerin

- *define a specific study area for the eco-pastoral diagnosis (the Karaburun peninsula was chosen for its high ecological and pastoral interest),*
- *meet the actors concerned with the peninsula management (farmers, rangers, area managers),*
- *make a first inventory of the ecological habitats in the peninsula.*

Eco-pastoral diagnosis in the Karaburun peninsula

1 week (may 2016)

Mobilization of the french team in collaboration with the Karaburun breeders and the regional Agency for Protected Areas (AdZM) of Orikum

MAIN PROJECTS IN THE REGION
PAST PROJECTS

- **MedWetCoast, 1999-2004.**

Regional Mediterranean Project, funded by GEF, FFEM and implemented by UNDP in Albania, to contribute to the conservation and sustainable use of wetland biodiversity.

  - *Main output for the Karaburun Area : Management Plan, 2005*
  - http://vinc.s.free.fr/presentation.php3?id_article=448

- **MedPAN South Project, 2008-2012.**

Regional Mediterreanean project to improve the management effectiveness of Marine Protected areas, funded by MAVA, GEF and EC/UNEP and implemented by WWF in Albania.

  - *Main output for the Karaburun Area : Management Plan for Sustainable Tourism, 2014*
  - http://mediterranean.panda.org/about/marine/marine_protected_area/the_medpan_south_project/

This list of projects for this area is not exhaustive. In particular there is a set of strategic papers produced on the Sazan island - see the "Synthesis of Sazani Island Managment Plan" (French Conservatoire du Littoral) (http://www.initiative-pim.org/node/62679).

GEF: Global Environment Facility
FFEM: French Global Environment Facility (Fonds Français pour l'Environnement Mondial)
UNDP: United Nations Development Program
MAVA: Foundation for Nature (Fondation pour la Nature)
EC/UNEP: United Nations Environment Programme
WWF: World Wide Fund for Nature

MAIN PROJECTS IN THE REGION
CLOSING PROJECTS

- **MCPA Project, 2011-2016.**

Implemented by the UNDP, aiming at Improving Coverage and Management Effectiveness of Marine and Coastal Protected Areas", and financed by GEF and MoE.

- *Output for the Karaburun area : Management plan for National Marine Park Karaburun-Sazan, 2014*
- *+ a serie of studies on socio-eco and tourism management of the area*
- http://mcpa.iwlearn.org/docs/management-plan-for-mpa-karaburun-sazani/view

- **Land of Eagles and Castles: Pilot Sustainable Tourism Model for the Albanian Adriatic Coastline", 2013-2016.**

Implemented by PPNEA in partnership with BSPB, and financed by CEPF, to promote community-driven and nature-based tourism in Key Biodiversity Areas.

- *Expected Output for Karaburun area : tourism products, reports on biodiversity*
- http://www.naturetouralbania.info/en/Reports.html

UNDP: United Nations Development Program
GEF: Global Environment Facility
MoE: Ministry of Environment
PPNEA: Protection and Preservation of Natural Environment in Albania
BSPB: Bulgarian Society for Protection of Birds
CEPF: Critical Ecosystem Partnership Fund

MAIN PROJECTS IN THE REGION
PRESENT PROJECT

- "NaturAl", 2016-2019.

IPA 2013 project for strengthening national capacity in nature protection – preparation for Natura 2000 network, funded by the EU, implemented by UICN, It Coop & Italian Botanical Society. Two outputs at national level (1) implementation of 5 management plans in National Parks and (2) a preliminary list of Natura 2000 sites

- *Expected output for Karaburun : the Karaburun Peninsula is identified as a Natura 2000 site*

It is worth noting that the pastoral issue is not really in the scope of the Albanian ministry of agriculture (MARDWA) which is more preoccupied by intensive and semi-intensive milk, cheese and meat production and with short terms results. Localized livestock farming systems are more complex to manage and the constitution of a referential (baseline) is a step-by-step and place-by-place process...
Maybe the empirical and methodological results gained in the BiodivBalkans projects and especially what we are presenting here with the eco-pastoral diagnosis can be better heard by the actors and institutions of the management of protected areas?
Let see in particular if the NaturAl project is interested by our approach ? 🙂

INSIGHTS FROM THE PROJECTS

Unanimous recognition of biodiversity interest of the area:

- Diversity of Habitats
- Species variety and high abundance
- Crossroad of dispersal (boundary effects)
- Cultural heritage & patrimony; local knowledges

… but need to be actualized by field work to characterized recent dynamics and evolutions AND find equivalence with European nomenclature

INSIGHTS FROM THE PROJECTS
PASTORALISM: A THREAT FOR THE ENVIRONMENT? (1)

- **All diagnosis indicate pastoral activity as a threat for the environment because of overgrazing and fires**

…. BUT for different (and contradictory) reasons !

- *"After the collectivization reform in communism livestock population declined sharply and then again after the breakdown of the cooperatives Sheep and goats are kept in concentration in locations, and so they are causing overgrazing".*
  Rajkovic & Kromidha, 2005, Management Plan for National Marine Park Karaburun-Sazan. Undp, 228 pp.

- *"(…) bearing in mind the new tendency for more sheep in the region, as well as the estimated potential carrying grazing capacity (2,4 sheep & goat per ha), there is evidence that habitat degradation and erosion will be a hot environmental issue".*
  MedWetCoast, 2005, Management Plan, Final Draft, Karaburun, 125 pp.

- *"The Karaburun peninsula covers 10,000 ha and is traditionally grazed in winter by 32,000 sheep and goats. An over-grazing is obvious and even the legal status of the area does not allow the use of existing forest for grazing and timber, the local population does not have any other alternative source of fuel-wood. Forest and maquis fires occur more and more often and they are set intentionally by shepherds to improve the pasture lands."*
  Berxholi, 2001, Final Report Stakeholder Analyzes and Governance Aspects MP document for project sites. Adapted from Project Document Albania (1999).

INSIGHTS FROM THE PROJECTS
PASTORALISM: A THREAT FOR THE ENVIRONMENT? (2)

- *"Livestock is the main economical activity of the site and will continue to be so for many other years. Provided that numbers of sheep and goat will increase, and bearing in mind the new tendency for more sheep in the region, as well as the estimated potential carrying grazing capacity (2,4 sheep & goat per ha), there is evident that habitat degradation and erosion will be a hot environmental issue if grazing is not controlled and managed rationally. The site provides suitable conditions also for cattle breeding, especially extensive forms such as free-grazing milky cows, as well as for apiculture, due to favorable geographical position, climate conditions and vegetation structure".*
  MedWetCoast, 2005, Management Plan, Karaburun, 125 pp.

- *"Livestock. Traditionally, livestock has been the most important economical activity in the study area, mostly for breeding goats and sheep. After the collectivization reform in communism the livestock population declined sharply and then again after the breakdown of the cooperatives. Sheep and goats are kept in concentration in locations, and so they are causing overgrazing. This is due to lack of water supply facilities for livestock; poorly developed road infrastructure (lack of access roads); long distance from the milk collection and milk processing centers."*
  INCA, 2014, Management Plan for National Marine Park Karaburun-Sazan

- *« Livestock: (…) Sheep herds grazes in the field of Ravena (in Karaburun), the valley of Tragjjas-Orikum-Radhime. On the other hands the herd of goats graze in the mounainous area Dhërmi –Kepi i Gjuhezes (area in Reza e Kanalit – Karaburun). Livestock grazes only in few place because the lack of water for livestock in other areas. This brings overgazing problem. »*
  PPNEA, 2013, Preliminary report for Key Biodiversity Area Karaburun – Cika Mountain

Pastoralism was though generally perceived as a threat for the environment by naturalist and actors of the nature conservation... but it seems that, in Albania (and in a lot of other situations!) the awareness of the positive effect of grazing and pastoral practices on biodiversity is growing... This awareness is also related to the growing concern in "agro-biodiversity".
So, not only pastoralism is more and more interpreted as an agricultural practice adapted to certain territories and sustainable use of natural resources, but also as a set of human practices that allows, by maintaining "open landscapes", the constitution of semi-natural milieu and biodiversity without which it would not exist.

ENVIRONNEMENTAL ISSUES: AN ARRAY OF PROTECTED AREAS

'Rreza e Kanalit – Karaburun'
Managed Natural Area (Category IV IUCN)
20 000 ha

'Karaburun-Sazan' Marine Park
Marine National Park (Category II IUCN)
12 570 ha + 2 721ha

Llogara National Park
Terrestrial National Park (Category II IUCN)
1 010 ha

Regional administration for protected areas:

- *Rreza e Kanalit – Karaburun peninsula: 20 000 ha*

Status of 'Managed Natural Reserve' since 1992
Protected landscape IUCN category IV (22/10/2004)
IBA (Important Bird Area) AL006 (10/04/2013)

- *Karaburun-Sazan Marine National Park: 12 570 + 2 721 ha (Karaburun + Sazan)*

National Park IUCN category II (28/04/2010)
IBA (Important Bird Area) AL006 (10/04/2013)
(First Protected Marine Area in Albania)

- *Llogara National Park: 1010 ha*

Status of 'National Park' since 1966
National Park IUCN category II (21/11/1996)
IBA (Important Bird Area) AL006 (10/04/2013)

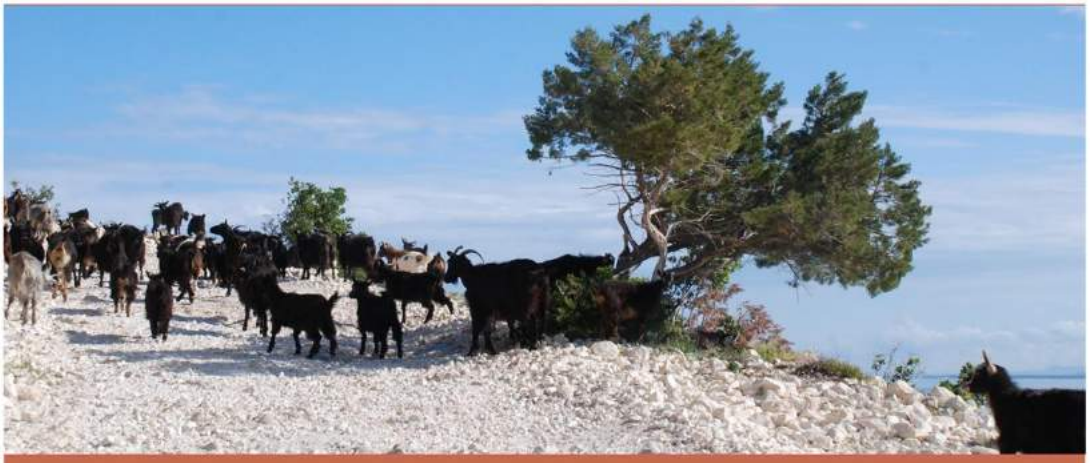
*Since mars 2015, these areas are managed by the National Agency for Protected Areas (*Agjensia Kombëtare e Zonave të Mbrojtura, AKZM*). It is with this agency that farmers establish pasture contracts. Rangers of the agency are in charge of controlling the area good management by the farmers (no fire, no woodcutting, etc.).*

Our study: scaling up from territory level to "topo-facies" plots

The starting point is to describe and study pastoral systems, in order to identify issues at territorial level. In a second phase, we have to focus on smaller areas to go more precisely in detail to understand the links between pastoral practices and resource dynamics. Eco-pastoral diagnosis is conducted at the farm level, "management units" and "topo-facies". Then, back to the territory scale: having refined the diagnosis of small units, a return to more inclusive level (peninsula, protected area, pastoral massive) allows to cross ecological and pastoral issues in order to approach a sustainable territorial management.

At each level, choices have been made considering their high level of interest, because they are representative of the area, or just for practical reasons.

Part 2: this part presents the livestock system on Dukat Valley, Dukat Village and Karaburun Peninsula.
Part 3: the eco-pastoral diagnosis was focused on a farm, and conducted at management unit and topo-facies levels.



PART 2

LOCALIZED LIVESTOCK SYSTEM IN THE DUKAT PASTORAL AREA

Informing the livestock context on the area (elements for a pastoral-environmental baseline):

Because there is a low level of information available on local pastoral situations, it was important to make a preliminary identification and description of the local livestock farming system(s) related to particular landscapes.

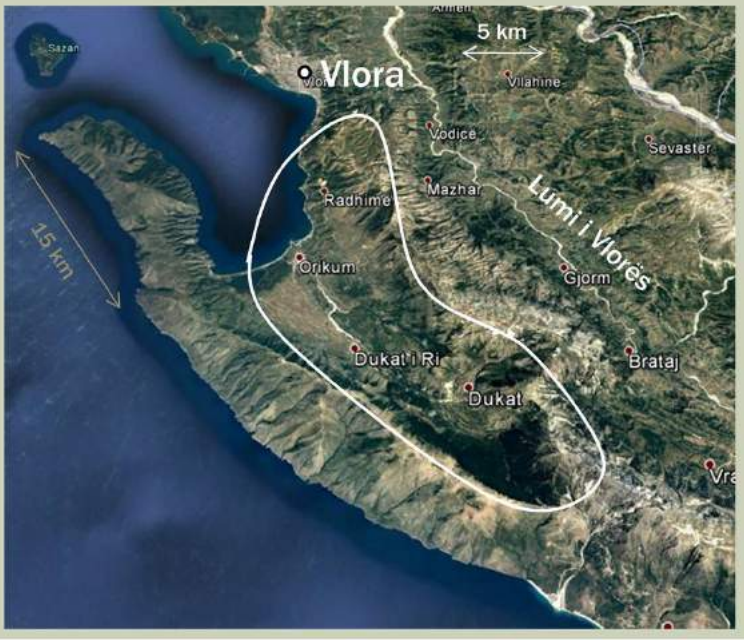
Part 2 presents a rapid overview of the pastoral ecosystem which is going to be considered during the eco-pastoral diagnosis. It is based on around twenty interviews with farmers and people related to livestock in the Dukat region, and field observations.

Choice of the study area:

- *Dukati valley was selected as an important livestock region, especially for the « Dukat black goat » local breed.*
- *In this region, Karaburun peninsula and Rreza e Kanalit mountain chain were particularly interesting because of their status of « Managed Natural Area ». That is why we focused on the Karaburun peninsula, which combines a high level of biodiversity and a lot of small ruminant big flocks (and because it was more accessible than Rreza e Kanalit area).*

PART 2: LOCALIZED LIVESTOCK SYSTEM IN THE DUKAT PASTORAL AREA

1/ Dukat Valley



MAIN ALTITUDS

Maja e Caderes
826 m

Maja e Sqillovikut
1471 m

Maja e Paliskës
1651 m

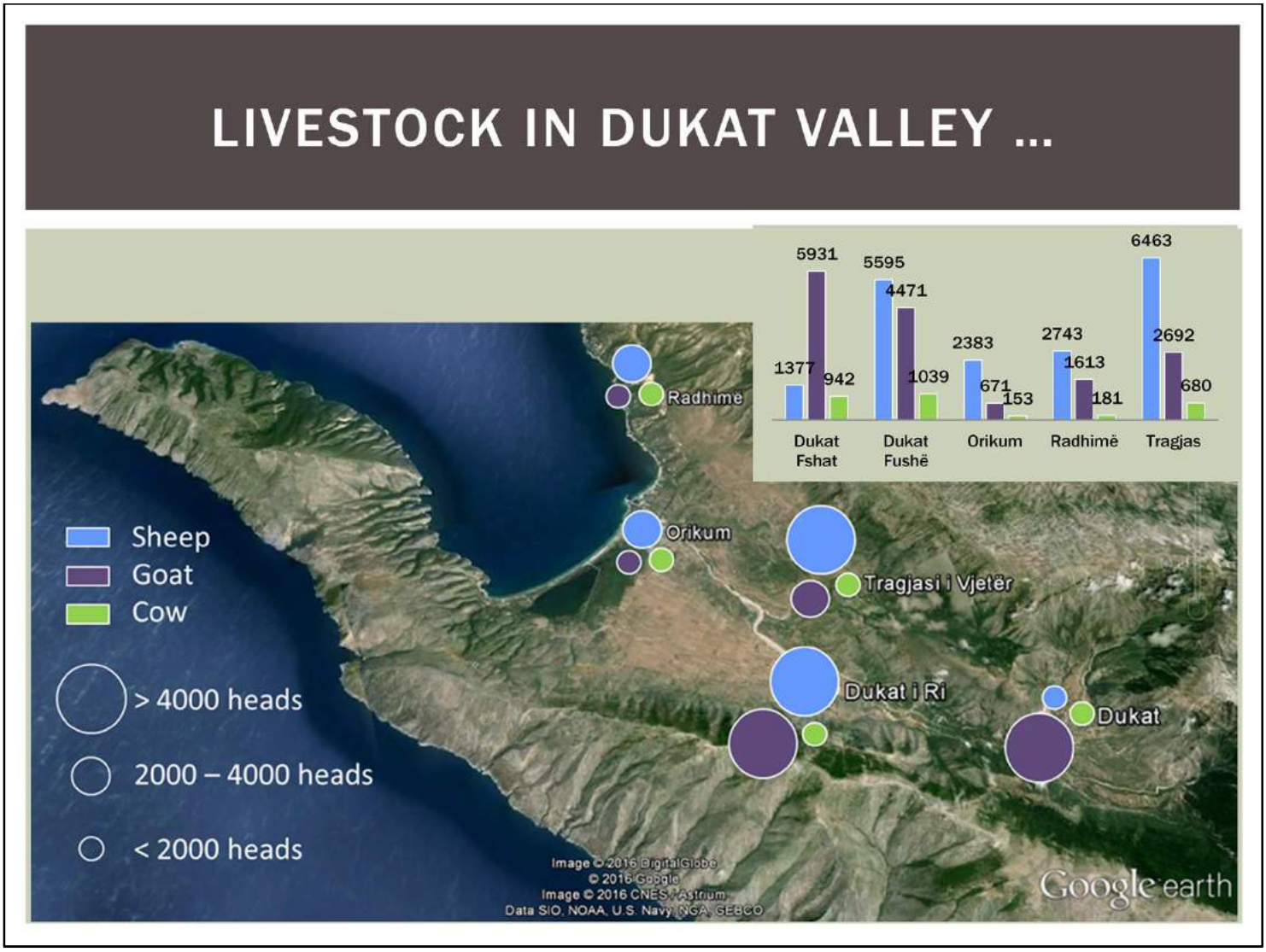
Maja e Qorres
2018 m

Mali Cikes
2045 m

Maja e Hilqes
785 m

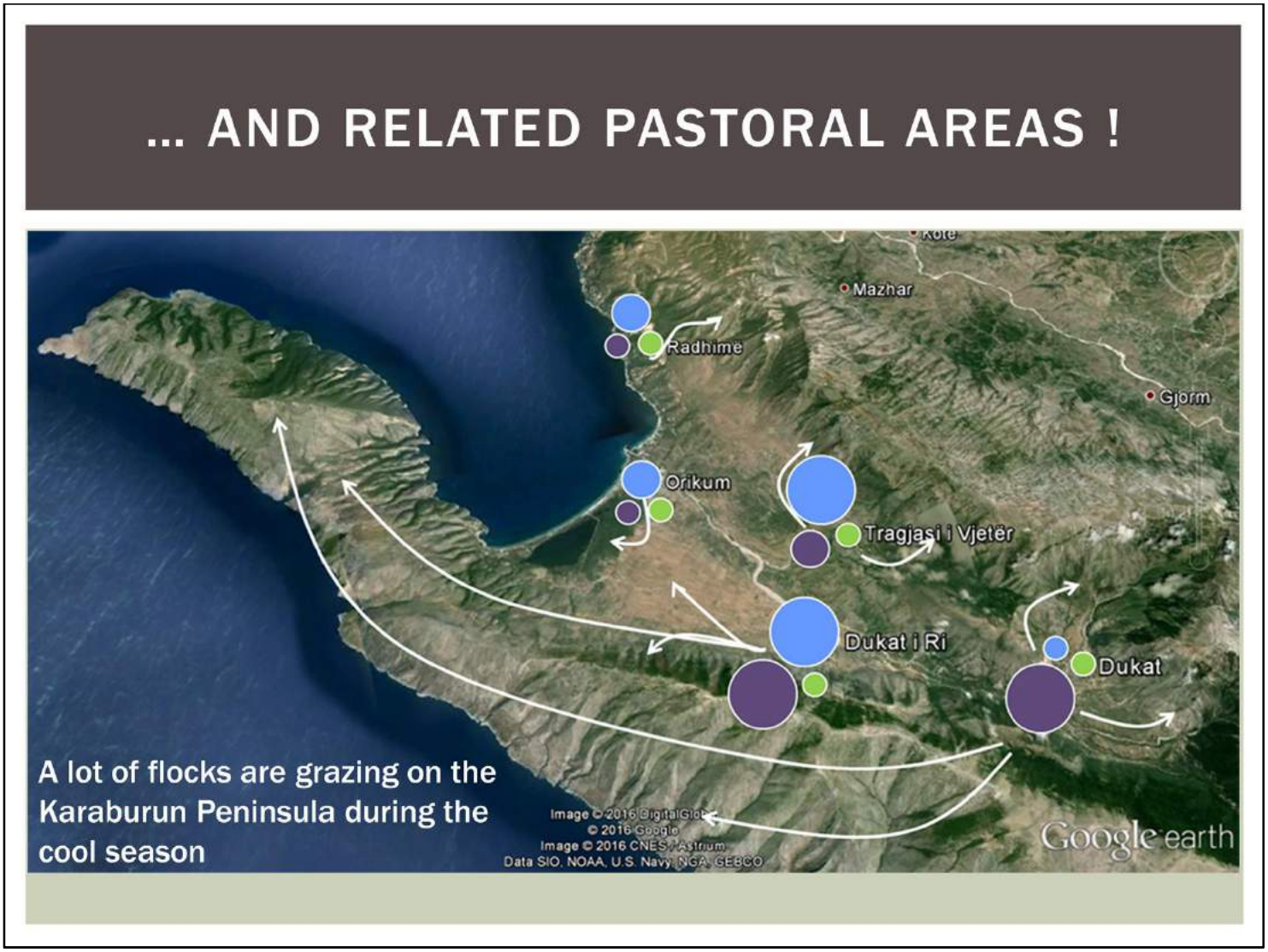
Maja e Shendelliut
1488 m

Qafa e Llogarase
1026 m



Dukat i Vjetër and Dukat i Ri are the two villages recording the highest number of goats and the highest number of bovines among the 102 villages of Vlora district. Dukat i Ri registers a lot of sheep, because of its pastures adapted to this kind of livestock. But Dukat i Vjetër, where herbaceous rangelands are rare, is more conducive to goat farming.

On the other hand, with regards to sheep, the villages of the large hilly plains of the "Lumi i Vlores" valley have the highest number of sheep in the Vlora district.



Flocks from Radhime, Orikum and Tragjas are moving locally: they are grazing near the villages.

Dukat, however, has a broader area or rangelands, including Karabrun peninsula, sides of the mountain range Rreza e kanalit, and the mountain range between Maja e Sqillovikut and Mali i Cikes.

The Karaburun peninsula constitutes pastures for the winter period, quasi exclusively for the flocks coming from Dukat. But there are also some other flocks coming from farther away: Permet, Tepelene, Lapardha (in Lumi i Vlores valley).

MARKET OUTLETS
LIVESTOCK PRODUCTS FROM THE DUKAT VALLEY

- Touristic area → strong demand for animal products (all year, but especially July and August)
- Milk and dairy products:
  - Dairies
  - Direct sale to restaurants
- Meat:
  - Cattle traders
  - Direct sale to restaurants

Livestock products: main consumption centers of the Dukat valley

A restaurateur from Radhimë

Dukat i Ri dairy

- *No problem for market outlet:*
- *Touristic area: strong demand for livestock products, especially in the summer period*
- *Good asphalted road*

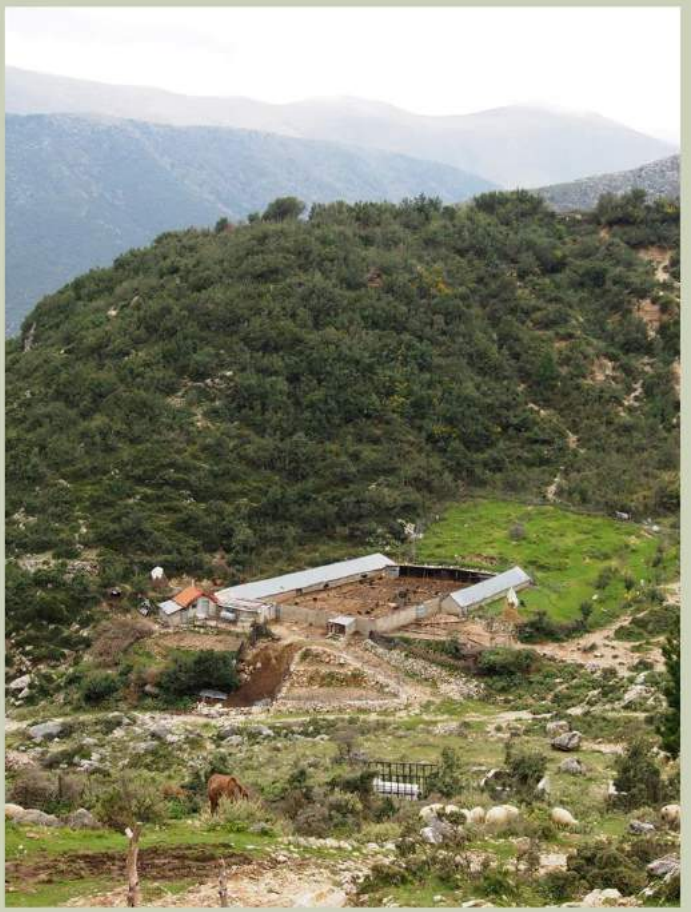
- ***Market main outlets:***
- *Llogara is a very important outlet for livestock productions. People come from all Albania to eat on these famous restaurants (with an amazing view on the plunging coast!), well known for the small ruminants spit roasted meat. Clientele is very important, achevieng in some restaurants 1000 consumers per day in July and August.*
- *The Radhimë-Orikum coast is full of restaurants where people from Vlora are often consuming meat and/or fish. Close to Vlora, these restaurants are all year opened (they are especially full during the weekend). Toward Orikum, some restaurants are open during the « summer season » only, from May to September.*
- *Vlora dairies and restaurants are also outlets for a lesser part of the Dukat livestock products (but Vlora is also provided by other local pastoral regions).*
- *Dukat (i Ri + i Vjetër) is a big village (5 000 inhabitants in 2016) and a large part of the milk and meat produced is self-consumed, swaped to acquaintances or directly sold to local retaurants.*

- ***Milk and dairy products:***
- *Dairies (Orikum, Dukat i Ri, Dukat i Vjetër, Radhimë, Vlora). All have the same price for each type of milk.*
- *Direct sale to restaurants*

- ***Meat:***
- *Cattle traders*
- *Direct sale to restaurants*

High demand → Farmers have a relatively high bargaining power. Cattle traders need to stock up outside the Dukat Valley to supply the permanant demand of the restaurants (mainly Llogara, and to a lesser extent Radhime, Orikum, Dukat).

This market situation is far away from the one we are facing in the Hasi region where marketing and prices are fundamental issues for breeders and livestock farmers.



PART 2: LOCALIZED LIVESTOCK SYSTEM IN THE DUKAT PASTORAL AREA

2/ Dukat Village

DUKAT LAND TENURE

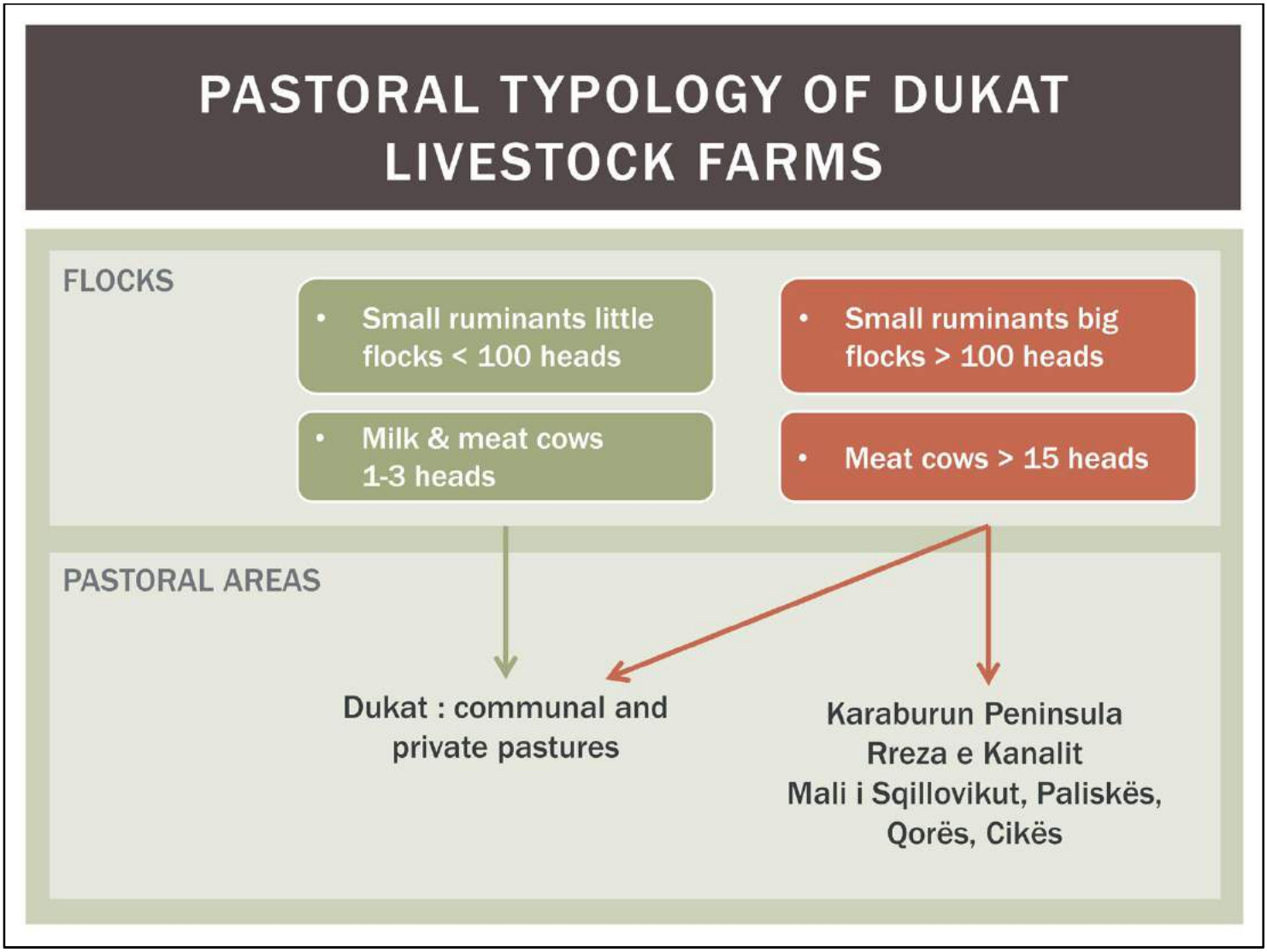
State public property : Forest and Pasture Directorate & AKZM (since 2015)
Communal public property : Vlorë Municipality and its Local Administrative Units
Private property (according to Law No7501 of 1991)

Private property (near the villages): *lands formerly cultivated by state farms and cooperatives under the communist regime, which have been redistributed according the Law on the Land of 1991 (Land Law No. 7501).*
Today, these beneficiaries have the full property and use of these lands: they are often cultivated (human food or fodder) or used as natural grasslands.

Communal public property :

- *« Musha »: Lands near villages can be used freely by all villagers for livestock grazing. They are grazed by little flocks.*
- *Other communal lands are managed by the Orikum Administrative Unit (NjA Orikum). Farmers have to establish a grazing contract with the NjA.*

State public property : *this corresponds to all others lands which are not communal, especially Protected Areas: Karaburun peninsula, Rreza e Kanalit mountain range, Llogara National Park. Karaburun- Rreza e Kanalit protected area is a category IV (grazing is permitted), but Llogara National Park is forbidden to pasture. Farmers whose flocks graze on the Protected Area of Karaburun-Rreza e Kanalit have to establish a contract with the Agency of Protected Areas (AkZM or AdZM).*



Little flocks

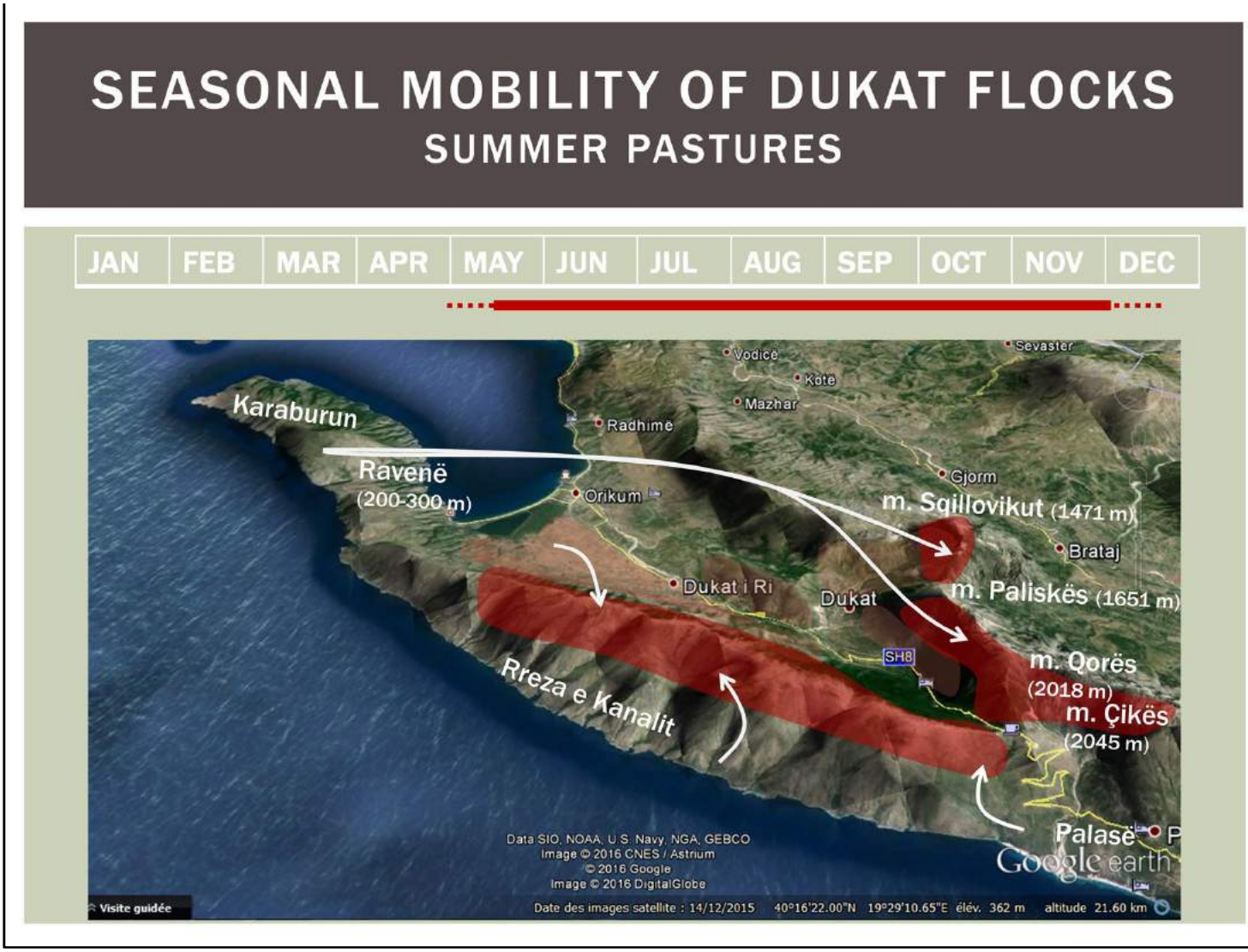
- *farmers have an additional income or another principal income*
- *low workforce and feed costs*
- *pastures near Dukat village*

Big flocks

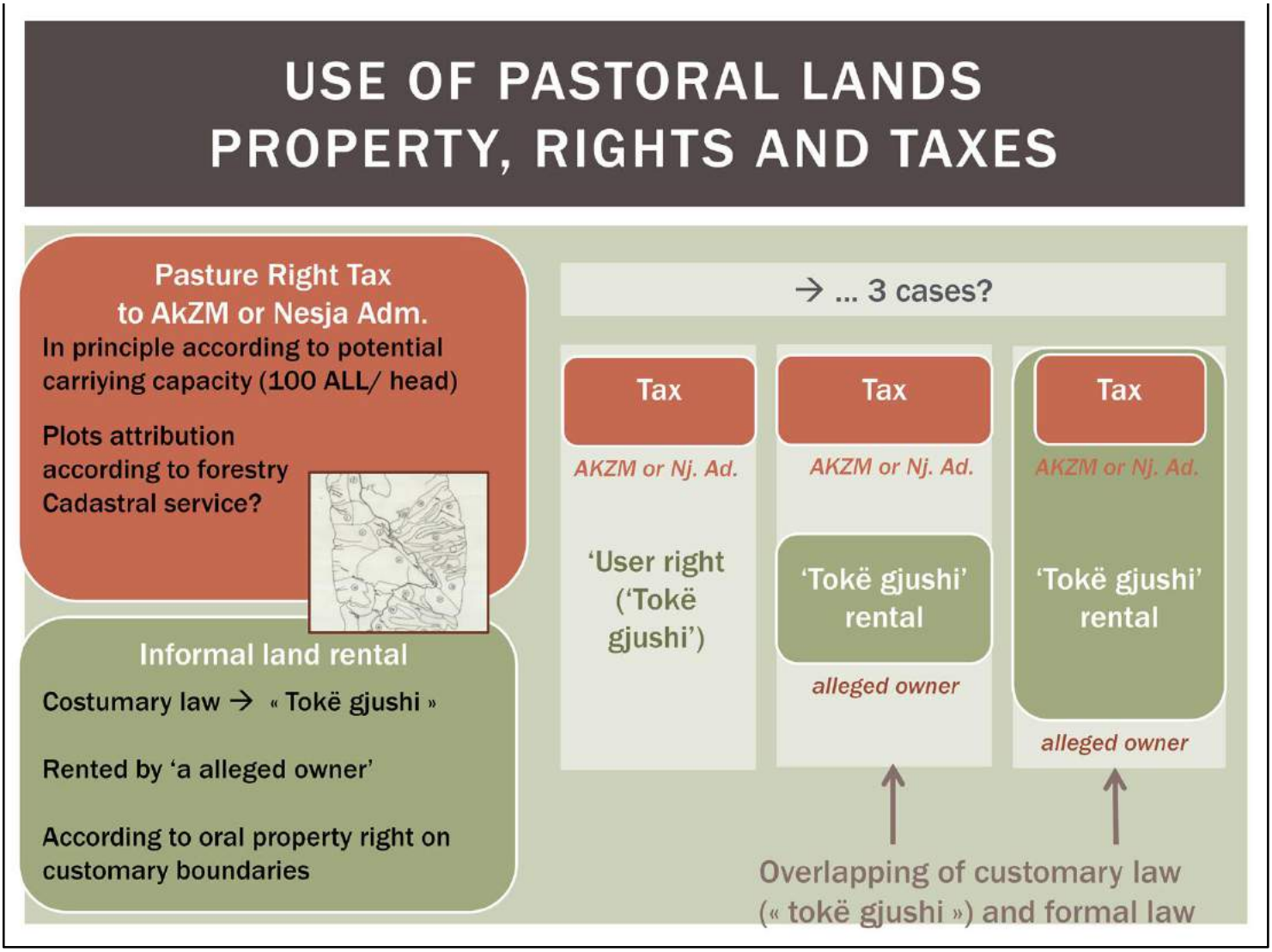
- *livestock as principal activity*
- *often, expenses on workforce and feed (mainly pasture rental)*
- *pasturing near Dukat village, part of the year or all the year for some farmers with "proximity constraints"*
- *more distant pastures with seasonal land rental*

Some flocks, mainly the smallest, remain on grasslands near Dukat i Ri or Dukat i Vjetërvillages. They are generally penned all year near the farmer's house.

Other flocks, however, are conducted in more distant pastures with seasonal transhumance. During the cool season, generally from November to early May (more rarely from September to June), Dukat's flocks graze where the weather is fine during the winter: Karaburun Peninsula, Dukat i Ri grasslands, the lower parts of Rreza e Kanalit sides. On the Karaburun peninsula and Rreza e Kanalit mountain range, each farmer is entitled to use part of the rangelands. Flocks are spread over the area. They stay the whole period of winter on one or several camps (« stan »). There are 2-4 farmers by flock, doing a turnover to go home from time to time.



When the weather is warmer and drier, between May and November, big flocks migrate to summer pastures: upper parts of Rreza e Kanalit, mountains of Sqillovikut, Paliskës, Cikes, etc.



- ***Pasture right tax:***

For a given plot of pasture, farmers have to pay a tax to:

- *the Agency for Protected Areas (AkZM). → protected areas (Karaburun-Rreza e Kanalit)*
- *or the Orikum Administrative Unit → other areas, non-protected areas.*

This tax depends on the number of heads and the carrying capacity of the plot. Until now, plots have been defined according to the existant forests and pastures cadastral plan. But AkZM is working on a new cadastre and plan to review plots carrying capacities.

- ***Informal land rental:***

A second payement sometimes added to the first. There is an informal market of land leasing, in which some pastoral lands are claimed as private according to a former (pre-communist) property status. These lands are commonly called « tokë gjushi », « grandfather lands »:

- *formerly used by the grandfather during precommunist times,*
- *collectivized, used for pastures or crops,*
- *now commune or state property, but their use has been reassigned.*

Farmers, if their pastoral lands are insufficient or too far, can rent a parcell to another.

3 cases :

- *(1) The farmer uses is own land according to the customary law, he only pays the pasture right tax;*
- *(2) The farmer has to rent lands: he pays the pasture right tax (to AKZM or NjA)+ the « grandfather land » rental (to the alleged owner);*
- *(3) The farmer has to rent lands: he pays a package to the alleged owner of the « grandfather land », including the pasture right tax and the informal land rental. The alleged owner pays back himself the tax amount to AKZM or NjA.*

➔ *Overlapping of customary law (« tokë gjushi ») and formal law… This issue has to be more studied, here and elsewhere in Albania!*

References about forests and pastures devolution in Albania:

Bernard C., Lerin F., Crouteix O., Lopez R. (2014). *Forests and pastures' devolution process in Albania: a sustainable management of Mediterranean commons?* Montpellier : CIHEAM-IAMM. Inception Study on Communal Forestry in Albania, 2013/12/04, Tirana (Albanie). 31 p.
Albanian version: Preçesi i devoluimit të pyjeve dhe kullotave në shqipëri: një manaxhim i qëndushëm i të përbashkëtave mesdhetare? 33 p.

Crouteix O. (2013). *Usages et propriétés des terres forestières et pastorales en Albanie. Processus institutionnel de dévolution aux communes, pratiques locales d'utilisation et impacts environnementaux. Etude de cas de trois communes de Mirdita.* Montpellier (France) : CIHEAM-IAMM. 136 p. (Master of Science, n. 134). AgroParisTech & SupAgro Montpellier, spécialité : Gestion environnementale des écosystèmes et forêts tropicales.

Lopez R. (2014). *Analyse stratégique de la gestion environnementale sur les forêts communales de 3 communes du nord de l'Albanie : le processus de dévolution donne-t-il les moyens aux communes de prendre en charge la gestion durable des écosystèmes forestiers sur leurs territoires ?* Montpellier (France) : CIHEAM-IAMM. 152 p. (Master of Science, n. 133). Mastère spécialisé « Forêt, nature et société » : partenariat CIHEAM-IAMM, AgroParisTech, COFOR International.

PART 2: LOCALIZED LIVESTOCK SYSTEM IN THE DUKAT PASTORAL AREA

3/ Pastoral massif: Karaburun Peninsula

PASTORALISM
SHEEP GRAZING ON THE RAVENË PLATEAU

5 flocks
Estimated number of heads:
~2000 sheeps
~200 goats

Pastures on the Ravenë plateau

Shepfolds on the Ravenë plateau

This 200-300 m high plateau is mainly covered by grasslands. There are about 5 flocks, especially sheep, grazing on it.

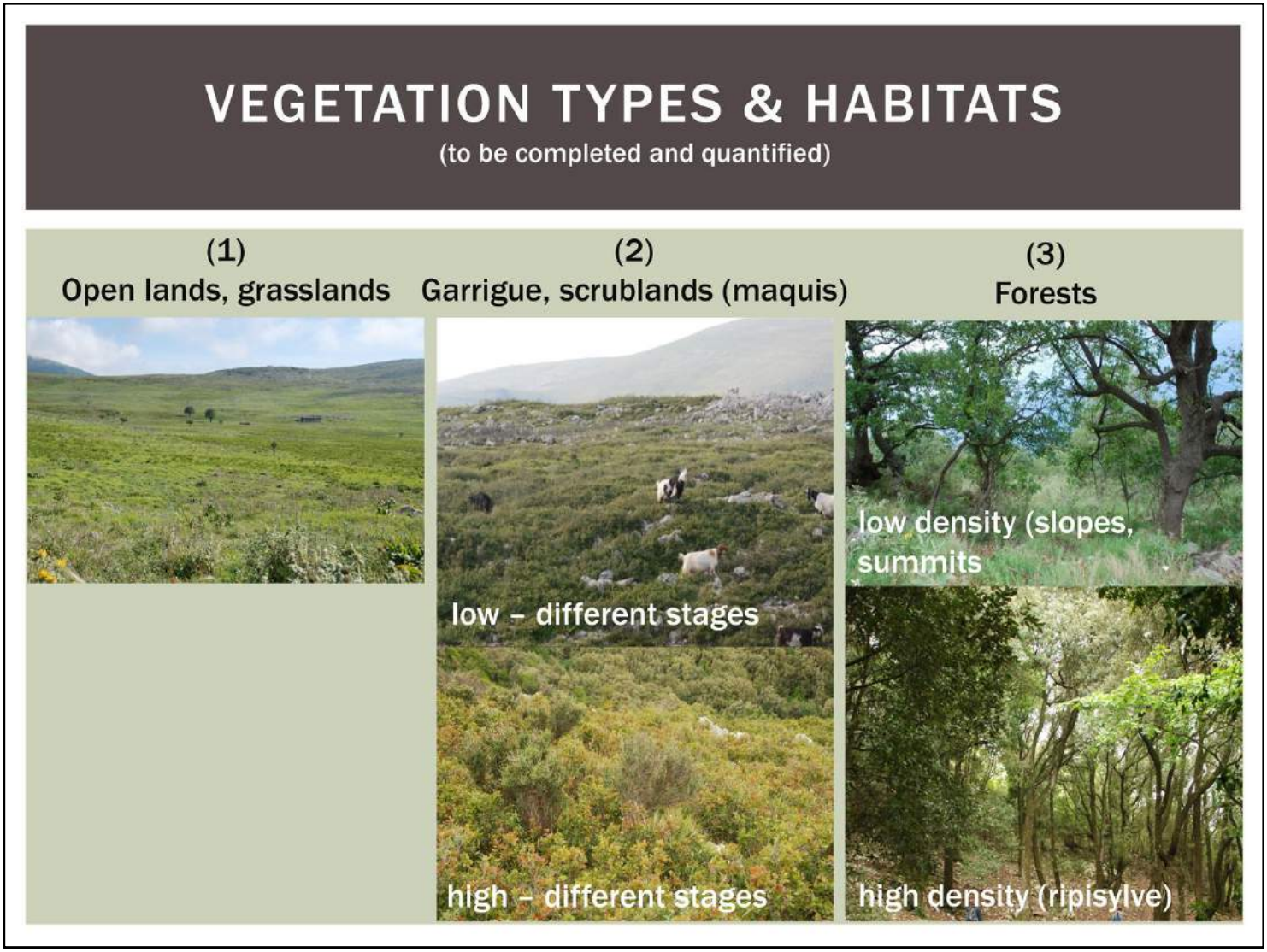
PASTORALISM
GOAT GRAZING ON THE KARABURUN SLOPES

10 - 12 flocks
Estimated number of heads:
~ 3000-6000 goats

Karaburun slopes

Goats on the Karaburun scrublands

The rest of the peninsula is more woody: forests, maquis, scrublands, etc. The ground is steeper and more adapted to goat farming. We can find around 10 flocks of 300-600 heads of goat on this part of the peninsula.



The Karaburun peninsula is covered by a variety of habitats of different stages, from grasslands to forests.

The following slides present an overview of the 5 main species associations observed on the peninsula (this work has not been done on the Ravenë plateau).

Phrygana vegetation:
(Assoc. *Chrysopogono – Phlometum fructicosae*, Assoc. *Ericetum manipuliflorae*)

Anthyllis hermaniea
Chrysopogon gryllus
Erica manipuliflora
Phlomis fruticosa
Thymus capitatus
Urginea maritima (= Drimia maritima)

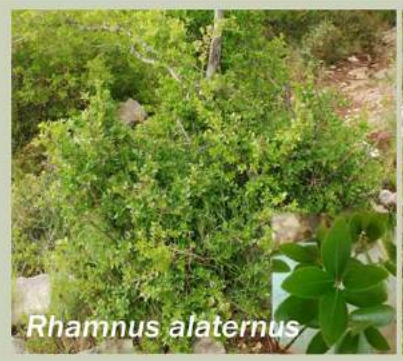
Usually, this habitat is indicator of dysfunction, with species which thrive in disturbed open areas. It is mainly found near the camps, where flocks are pened.

Maquis vegetation :
Quercus coccifera
(Assoc. *Orno- Quercetum cocciferae*)

Brachypodium retusum
Fraxinus ornus
Laurus nobilis
Myrtus communis
Pistacia lentiscus
Quercus coccifera
Quercus ilex
Quercus macrolepis
Reichardia picroides
Trifolium stellatum

Maquis vegetation:
Arbutus unedo and Erica arborea *(Assoc. Arbutus unedo- Erica arborea)*

Arbutus unedo
Brachypodium distachyum
Calicotome villosa
Carpinus orientalis
Cotinus coggygria
Erica arborea
Ostrya carpinifolia
Rhamnus alaternus
Schlerochloa rigida

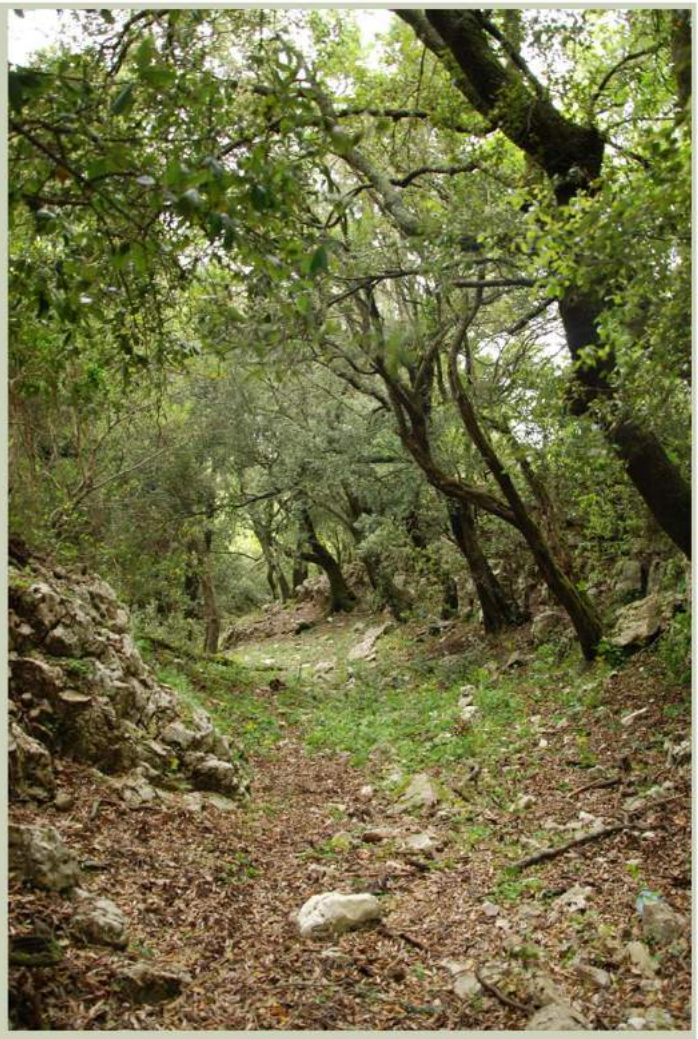

Rhamnus alaternus


Erica arborea

Forest vegetation:
Broad-leaved evergreen forest
(Assoc. *Orno –Quercetum ilicis*)

Fraxinus ornus
Phillyrea angustifolia
Pistacia lentiscus
Quercus coccifera
Quercus ilex


Quercus ilex



Forest vegetation:
Quercus ithaburensis subsp. Macrolepis
(Assoc. *Quercetum macrolepis*)

Acanthus spinosus
Acer campestre
Anagallis arvensis
Cercis siliquastrum
Cistus salviifolius
Crepis vesicaria
Cynosurus echinatus
Dactylis glomerata
Galium aparine
Hypericum empetrifolium
Medicago polymorpha
Psoralea bituminosa
Quercus ilex
Quercus macrolepis
Quercus pubescens
Rhagadiolus stellatus
Satureja graeca
Securigera securidaca
Trifolim campestre


Cistus salviifolius


Quercus macrolepis

Valona oaks forests (Quercus macrolepis) are habitats of Community Interest, according to the Habitats Directive of the European Union.

Habitats of Community Interests are areas which are endangered, have a reduce range due to their regression, or are presenting distinctive characteristics. These habitats constitute natural areas of heritage value (Natura 2000), managed and protected by the member states of the Habitats Directive.

Forests Location:
river riparian and slopes

PART 3

ECO-PASTORAL DIAGNOSIS

Focus on farm, management unit and topo-facies

The eco-pastoral diagnosis is made at more detailed scales: farms, management units and topo-facies scales. This requires to work with farmers interested and motivated by this kind of approach.

In this case, the diagnosis has been made:
- On one farm only (by time constraint). This farm was choosen because it is representative of the farms present on the peninsula (in terms of problems, habitats used as pastoral resources, practices, etc.). The choice of the farm was based on the previous work dedicated to the livestock farming system of the Dukat pastoral area.
- The pastoral area of this farm can be divided in Management Units (MU): in Karaburun peninsula, we can consider that there is one MU; there is/are other MU(s) on the summer pastures (but we didn't diagnose them).
- This MU has been divided in 13 topo-facies. We conducted the diagnosis in 8 of them.

PART 3: ECO-PASTORAL DIAGNOSIS

1/ Farm level

Global understanding of the farm

The goal of this step is to understand how the farm operates, objectives and strategies of the stock farmer:

- *conduct an inventory of pastoral practices,*
- *understand farmer's perceptions concerning the rangelands he uses,*
- *describe and characterise the structure of the farm, the production and commercialization objectives,*
- *measure the feed autonomy and the proportion of open pastoral habitats in the flock's feed,*
- *characterise and understand any difficulties encountred by the farmer in managing the rangelands, and more generally in his farming activity.*

FARMING SYSTEM PRESENTATION

FLOCK

- 600 Dukat black goats:
  - 300 goats in reproduction
  - 300 others (revewal, billy goats, kid goats)
- 15 meat cows
- 4 donkeys

WORKFORCE

3 workers

PRODUCTIONS

Cheese produced on Karaburun (~2400 kg/an) and meet are sold to local consumers and restaurants

1 case of a goat farm in the Karaburun peninsula

Flock: *The farm choosen is raising around 600 goats of the Dukat breed (Dukat black goat), 15 cows and 4 donkeys.*

Workforce: *the farmer + his brother + his son + an employee = working in shifts, by rolling (on avereage 3 workers permanency)*

Reproduction: *from July to the birth (1 to 20 december), billy goats and goats are managed together. The young are weaned on 15 April.*

Production:

- *Cheese: around 2400 kg cheese produced on-site. Sold to restaurants or individuals.*
- *Meet: Sold from 20 April to end of August (mainly June, July, August). Kid goats are slaughtered in the camp and sold as carcass (750 ALL/kg), to restaurants or individuals.*

Perception of the pastoral open landscapes evolution:

« I notice a global overgrown of the rangelands. This is closing landscapes and reducing the pasturable areas. But the problem is that we don't have the right to make fire. »

FARMING SYSTEM PRESENTATION

PASTORAL AREA S

- Karaburun peninsula
- 10 months: September to June
- 600 ha
- 4 camps

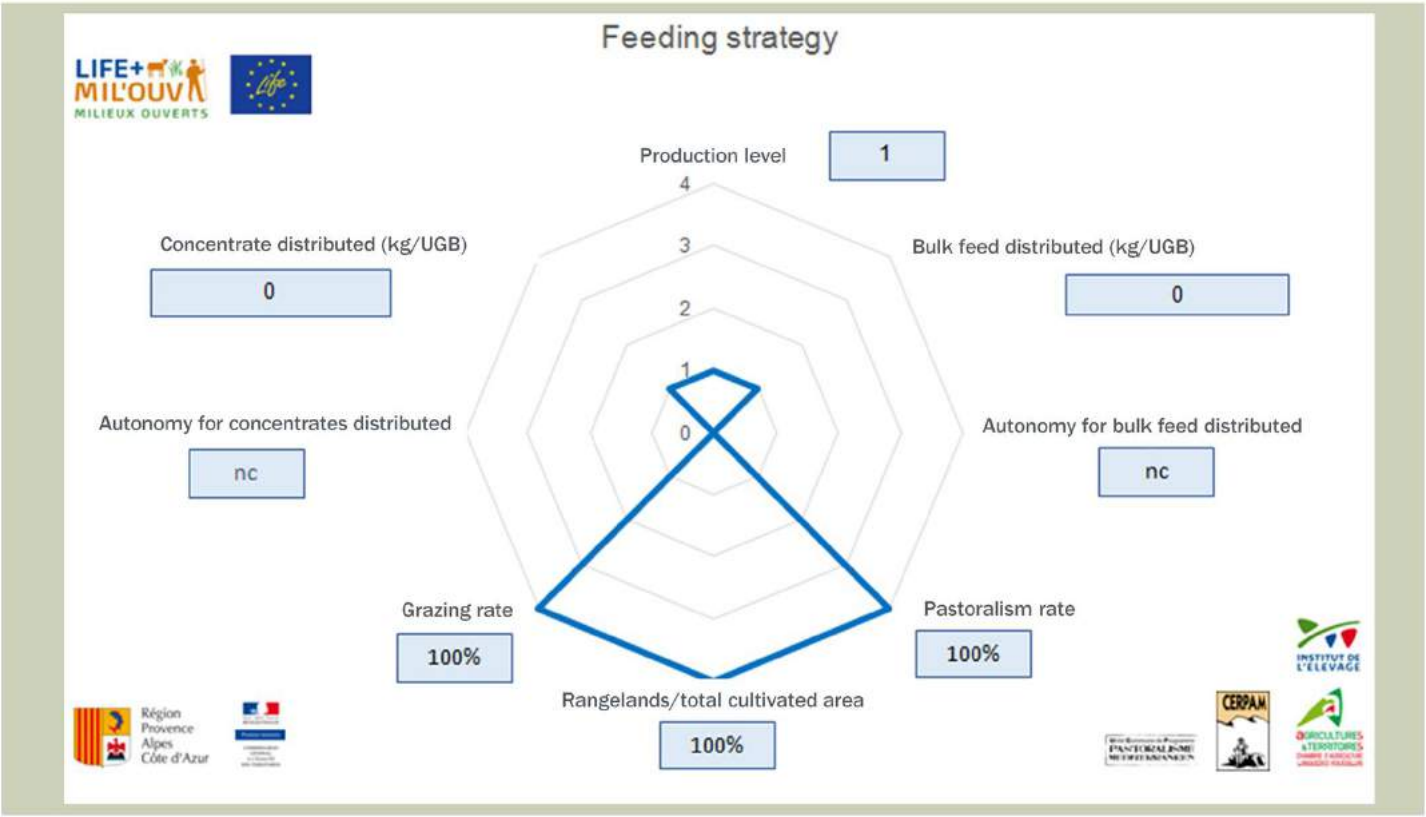
- 'Barshala' Mountain
- 2 months: July-August
- 1 camp

Pastoral area:

The flock is moving according to the weather, resource availability (herbaceous in summities, scrublands lower), water access, etc.

- *10 months on the Karaburun peninsula (September to June)*
- *2 months on the Barshala mountain (July-August)*

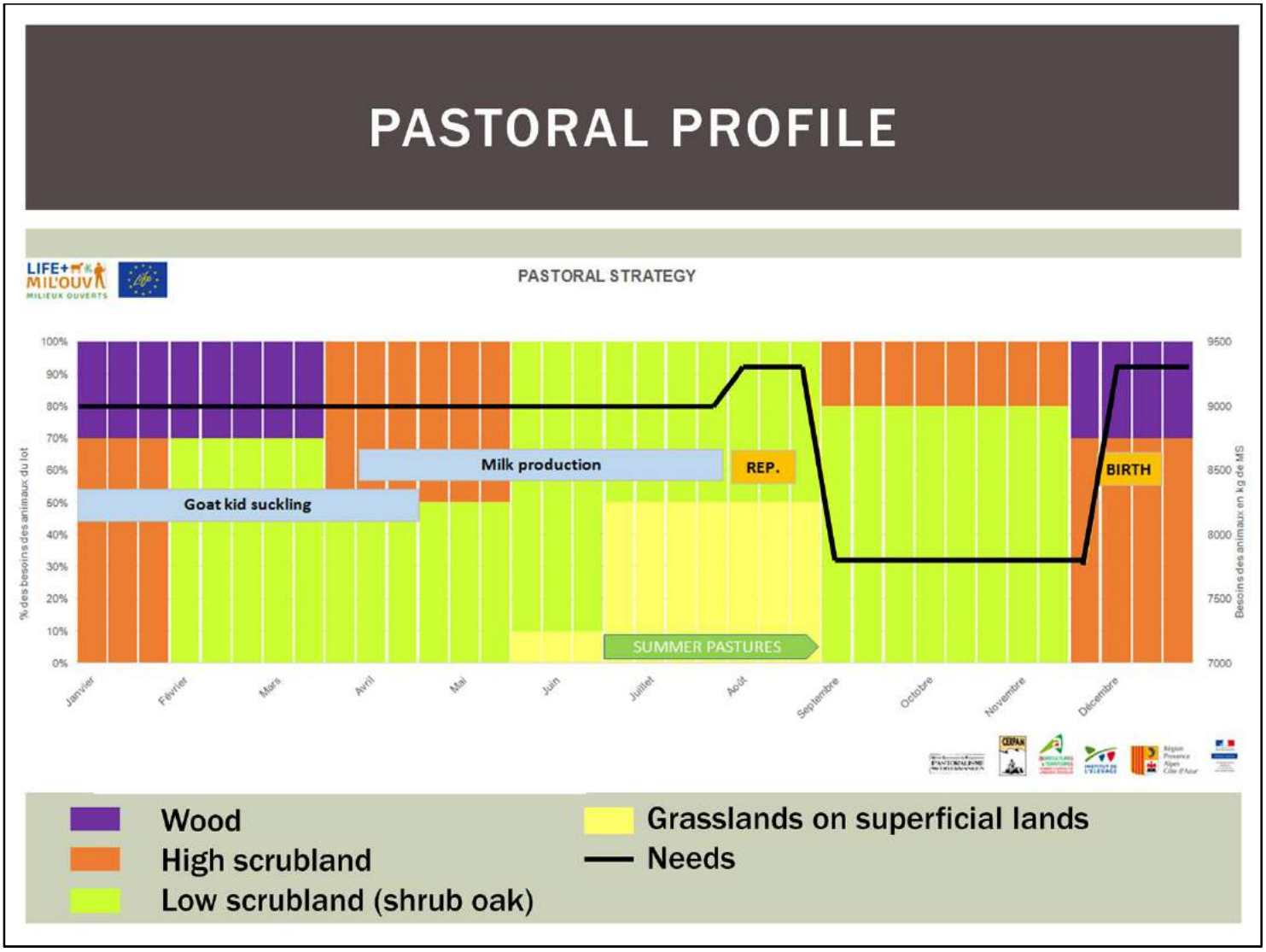
FEEDING STRATEGY: 100% PASTO !!!



Feeding strategy radar: *to compare situations between farms (same production and/or same territory) and to monitor inter-annual differences on the same farm. They characterise the farm's feed strategy using several axes scored 1 to 4 (1 = low, 4 = high):*

- *The **production level** (as there are no local references, we can extrapolate the results based on references for Mediterranean ovine meat systems);*
- *The strategy over **bulk feed distributed**:*
  - *The quantity of bulk feed (fodder, grass) distributed per livestock unit;*
  - *The level of autonomy for bulk feed: autonomy is the proportion of feed produced by the farm in the total feed consumed by the livestock. It measures the level of independence of the farm with regard to the outside in terms of feed for its livestock;*
- *The strategy over **concentrates distributed**:*
  - *The quantity of concentrates distributed (cereals and/or food) per livestock unit;*
  - *The level of autonomy for concentrates;*
- *The strategy over **land use**:*
  - *The grazing rate: proportion of pastureland (meadows + rangelands) in the flock's feed;*
  - *The pastoralism rate: proportion of rangelands in the flock's feed;*
  - *The proportion of rangelands on the total cultivated area.*

Remark: *In Karaburun, a lot of farms have a very high grazing rate like this farm where feeding is 100% pastoral (no distribution of concentrates or bulk feed, only grazing on rangelands). This shows how flocks are extremely dependant on these pastoral areas.*



Patoral profile:

This graph allows to have a view of which resources contribute to the flock's feed for each decade.
In this case:

- *wood and scrubland in winter,*
- *scrublands in spring and automn,*
- *low scrublands and grasslands in summer.*

Remark:

There is an important use of ligneous resource (wood and scrublands), particularly during the « winter period » in the Karaburun peninsula.

Farming system description

Management Unit delineation

Topo-facies description

PART 3: ECO-PASTORAL DIAGNOSIS

2/ Management Unit and Topo-facies levels

1 Management Unit
13 Topo-Facies (8 diagnosed) →

Eco-pastoral diagnostic at Management Unit scale:

Management Units are surface areas managed in the same way, for example a set of grazed areas per specific plot over one or more data periods.
Objectives: *The diagnosis at the Management Unit scale permits to describe the broad outlines of grazing, and obtain an insight into how the flocks have an effect on landscape's dynamics.*
Procedure: *We visit the territory on foot with the farmer to identify the broad trends on the management units. On each management unit, the aim is to observe the pastureland present and the maintenance of the plant dynamics by the flocks, to identify and understand any management problems and to identify the expectations of the stock farmer in order to obtain an overview of the ecological and pastoral issues on these Management Units.*

Eco-pastoral diagnostic at Topo-facies scale:

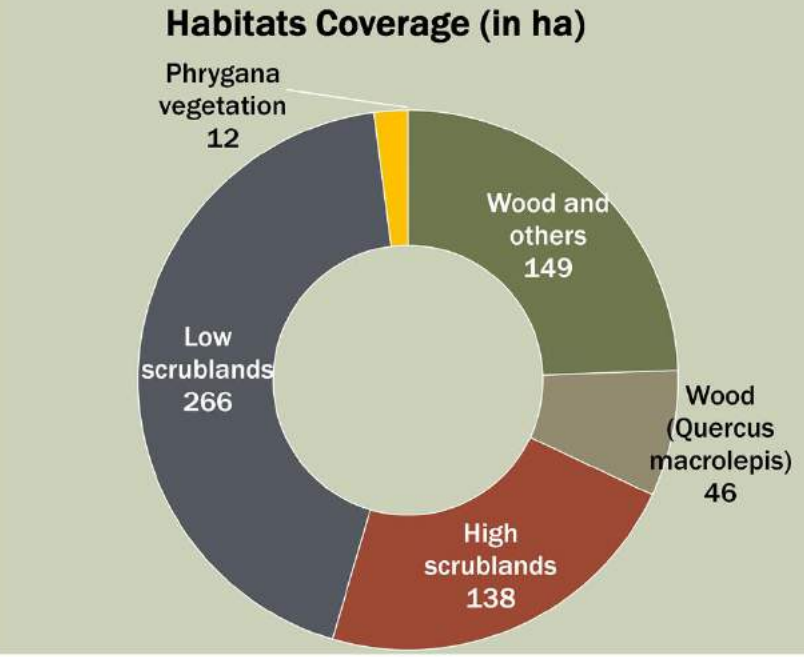
In a second time, we refine the diagnostic in certain Management Units of particular interest (dysfunction, specific objective, etc.) by calling on descriptive criteria (status, functioning, potential of the environment, etc.),
Topo-facies is a homogenous unit with regard to vegetation and topography, demarcated by a fence, a barrier consisting of plants, a change of vegetation structure or relief (exposure, soil, etc.). It can be a homogenous habitat or a patchwork of different interwoven habitats.
Objectives: *Record field indicators to refine the diagnostic with description criteria for the status of the resource.*

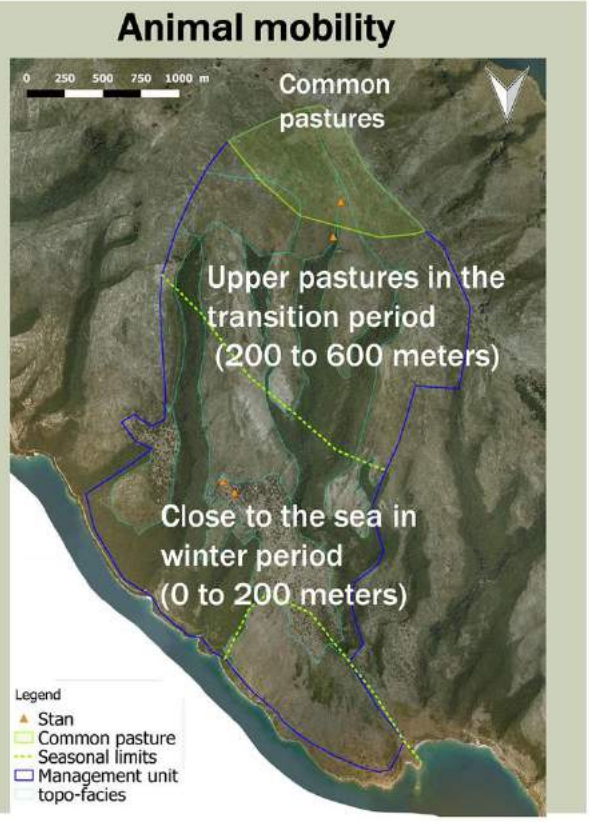
Indicators:

- *Description criteria for the pastoral resource: natural habitats present, productivity (quantity, quality), attractiveness; flexibility of use (resource conservation, shadow effect,…); capacity of circulation of the flock (presence of physical or topographical barriers, etc. which can make a resource inaccessible to the herd);*
- *Criteria for state of conservation of the environments: indicators of over-use (ruderal species, nitrophilous species, bare soil, etc.), or under-use (accumulation of biomass, presence of litter, etc.);*
- *Controlling the dynamics of woody plants crossed with the impact of grazing on this population.*

MANAGEMENT UNIT DESCRIPTION

600 ha situated in the nord-east slope of the Karaburun Peninsula, grazed from September to June (10 months)





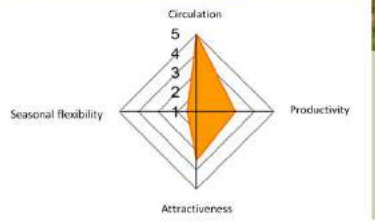
Habitats coverage:

This graph represents the share of different natural habitats found on all topo-facies of the Management Unit.
Two-thirds of this Management Unit is covered with scrublands (low scrublands with Q. coccifera; high scrublands with Q. coccifera, Arbutus unedo, Erica arborea, Pistacia lentiscus, Rhamnus), and about a third with wood (wood of Q. ithaburensis ssp. Macrolepis, wood of Q. ilex).
Phrygana vegetation corresponds to a little part of the coverage, principally close to the camps, where the flock is pened.

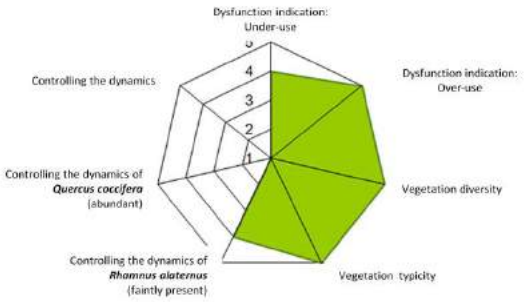
Animal mobility:

- *Lower: Goats are grazing close to the sea in winter period (November to May): Lineous vegetation, more rich, is interesting during the lactation period. Weather is more hot. Goats drink sea water and benefit from its salt. Milk: more fat but less quantity.*
- *Upper: Used in automn (beginning of September to 20 November) and in Spring (20 May to 20 June). The vegetation is more herbaceous. Weather is more fresh. Milk: less fat but more quantity.*

TOPO-FACIES DIAGNOSIS
EXAMPLE 1



→ Good vegetation typicity and diversity
→ Productivity medium



→ No eco-pastoral dysfunction
→ Heterogenous control of the ligneous dynamic.

Indicators:

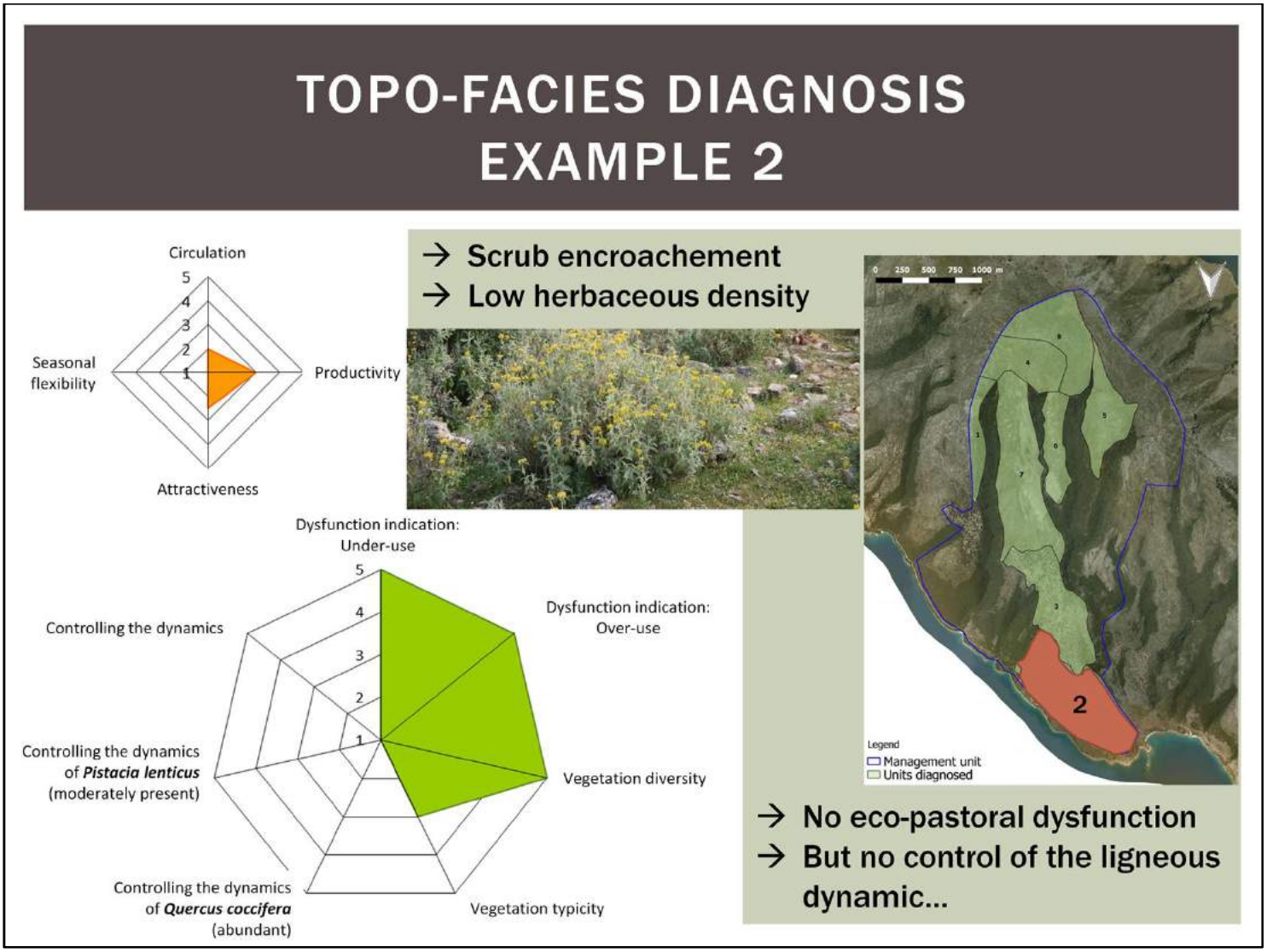
Flock circulation: easy
Herbaceous productivity: medium
Herbaceous attractiveness: medium
Resource conservation capacity: low

Dysfunction: no
Vegetation diversity: high
Vegetation typicity: high (no ruderal species)

Controlling the dynamics of woody plants:
- *Rhamnus alaternus (low presence): high control*
- *Quercus coccifera (abundant): low control*

General conclusions on the topo-facies:

The habitat seems relatively stable. There is no indicator of dysfunction.
This topo-facies was burned 3-4 years ago. Ligneous dynamic is controlled by fire and grazing : after fire, Rhamnus alaternus is well consumed, well maintained, but Kermes oak (Quercus coccifera) makes vigorous regrowths.



Indicators:

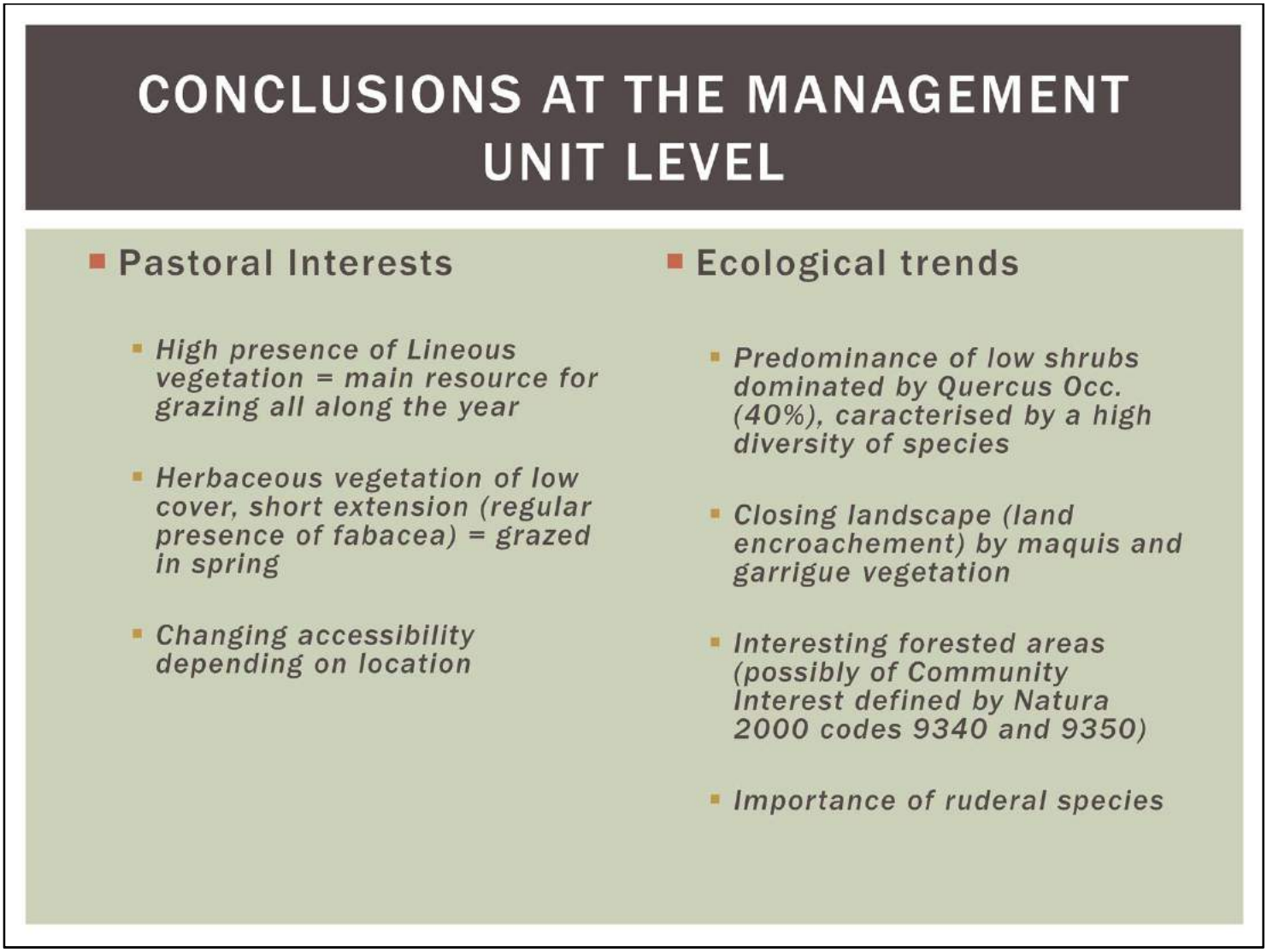
Flock circulation: difficult (because a lot of woody plants)
Herbaceous productivity: medium
Herbaceous attractiveness: low
Resource conservation capacity: low

Dysfunction: no
Vegetation diversity: high
Vegetation typicity: medium (a lot of Phlomis fruticosa = ruderal species, perturbation indicator)

Controlling the dynamics of woody plants:
- *Pistacia lentiscus (medium presence): no control*
- *Quercus coccifera (abundant): no control*

General conclusions on the topo-facies:

There is no eco-pastoral dysfunction (under- or over-grazing) for herbaceous species.
But poor/no control of the ligneous dynamic (mainly Quercus Coccifera and Pistacia Lentiscus) because of a very low grazing pressure.

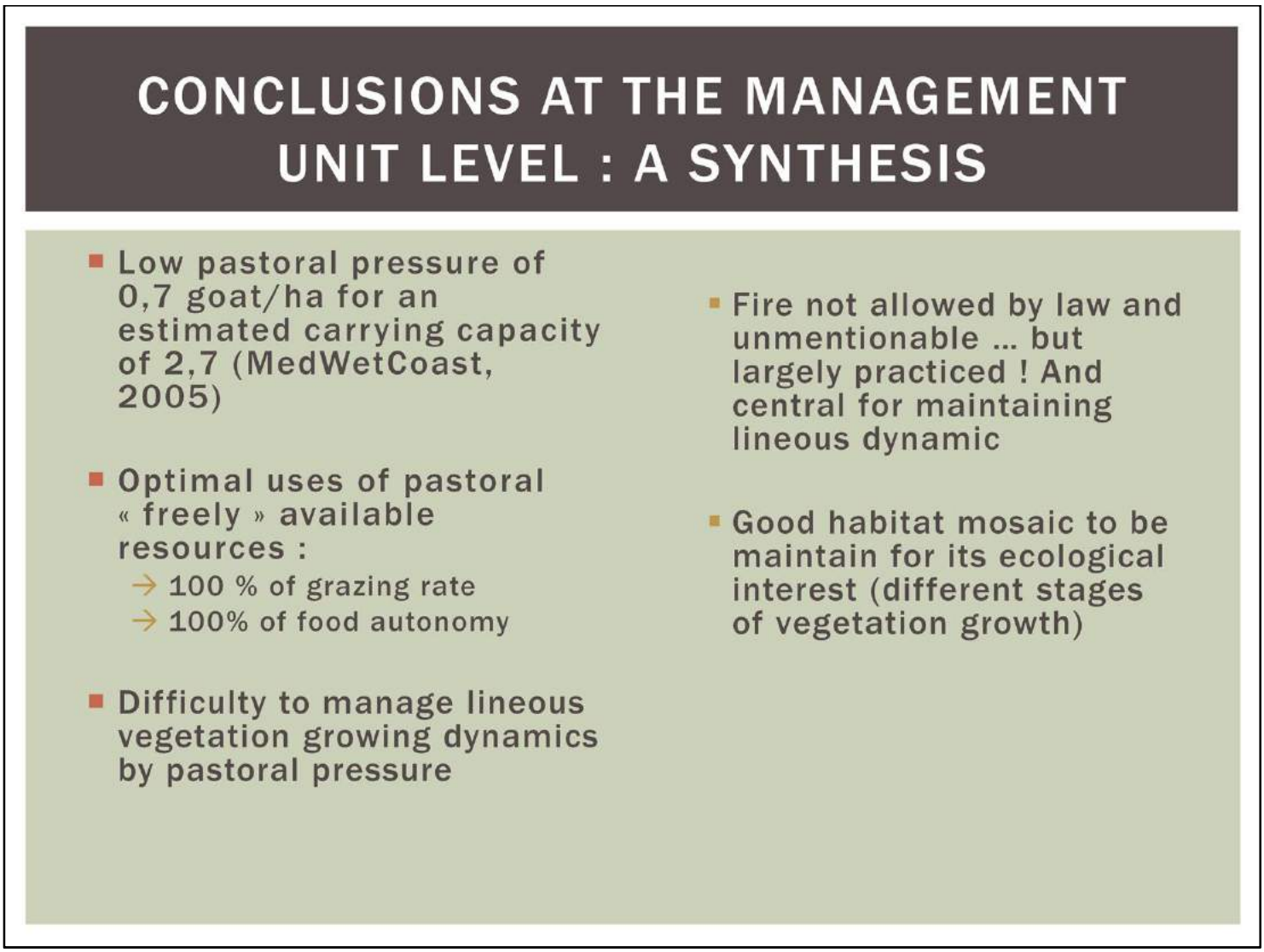


Pastoral interest of the Management Unit:

- *Wood resource is omnipresent.*
- *Herbaceous layer is usually less dominant but not insignificant (legumes and grasses). Herbaceous layer is often dominated by Brachypodium retusum, which is not much consumed. More rarely, we can find Dactylis glomerata, Festuca grp. ovina, Anthoxanthum od. Legumes are more or less abundant according to sectors (Medicago spp., Genista sericea sp., Trifolium spp., Dorycnium pentaphyllum parfois abondant, Viscia sp.).*
- *It is difficult to estimate the resource conservation («* report sur pieds *» in French), but overall its seems limited for herbaceous species.*
- *The Management Unit is not used in summer (sumer pastures from 20 June to end of August). The most grassy areas (at the top of the MU) are grazed in spring and summer (season of grass growing). The diffuculty arises mainly in late summer and late winter, but during these times it is mainly only the ligneous stratum which constitues the flock's feed.*
- *Accessibility is variable depending on the type of vegetation: from very easy (low garrigue, meadow) to very difficult (dense maquis). Mature woodlands with Quercus ilex do not offer significant resource, and are often difficult to penetrate.*

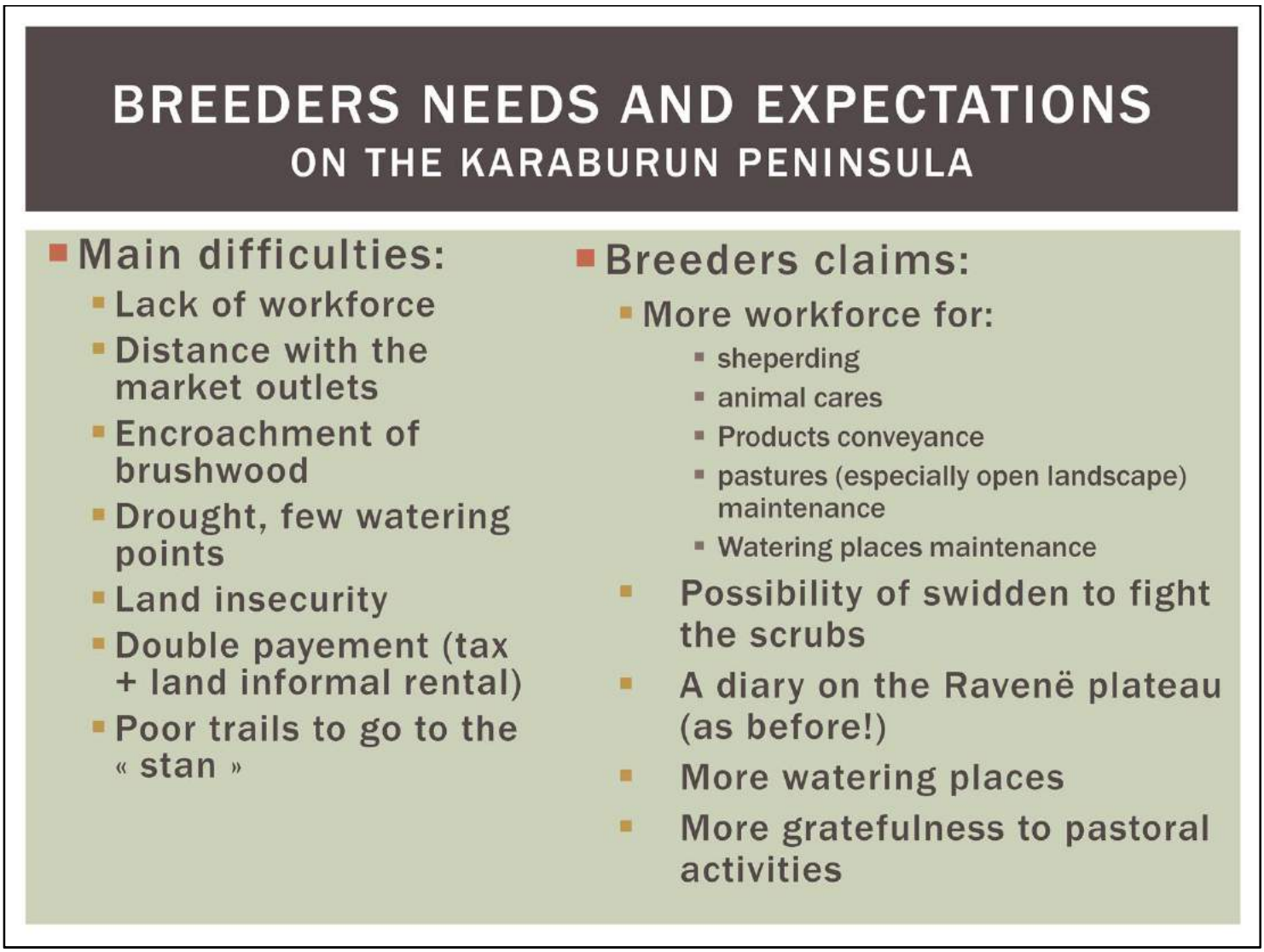
Ecological issue of the Management Unit:

- *Low garrigue with Quercus coccifera is covering more than 40% of the Management Unit. This habitat is not of Community Interest, but however it appears as the most rich and diverse.*
- *Many orchid have been observed (O. quadripunctata, O. scolopax, O. morio, Serapia sp.). It is not rare species but their presence can emphasize a moderate impact of fire on these environments.*
- *The most overlapping species are obviously lineous (Q. coccifera, Cystus sp., Erica arborea, Arbutus unedo, Rhamnus alaternus, Satureja sp.).*
- *Observation of the Lulu lark (Annex I of the Birds Directive).*
- *Areas with Arbutus unedo, Erica arborea, Pistacia lentiscus or the high garrigues dominated by Quercus coccifera cover about 138 ha and appear to be the most challenging habitats to manage: they evolve towards stages increasingly closed, forward toward scrub or woodlands.*
- *The evergreen woodlands with mature Q. ilex can be of Community Interest (9340). It seems to be the climax forest of this area.*
- *The Mediterranean Quercus macrolepis woodland, tertiary relics, occupy about 46 ha. This is an habitat of Community Interest (9350). Howerver, almost all the woodland present a shrub with a strong covering of Phlomis fruticosa (is it a degraded form?).*



Conclusions:

- *Ruderal areas on about 58 ha (proximity of the camps + preponderence of Phlomis fruticosa under Quercus macrolepis woodlands).*
- *Woody dynamics difficult to manage:*
  1/ By fire: fire are usually done in summer and therefore very risked. This practice is prohibited and therefore complicated to discuss. Maybe the area concerned is very large (too large relative to the workforce?)
  2/ By grazing: Loading is very low (0.7 goat/ha for 2,4 « recomanded » in the management plan). It is insufficient for a significant impact to fight against dynamics of the woody dynamics.
- *Best practices for an exclusively pastoral production: mobilization of grasslands during the period of the grass growth, mobilization of woody resources throughout the year.*
- *A landscape mosaic to be maintened, hence the importance of pastoral activity. Find a balance between maintaining open habitats and leave free the environments evolution.*



Obviously, this « register of grievance » is elementary. It should be consolidated for the PA Management Plan by the stakeholders and authorities to see how these bottlenecks can be overpassed for a better sustainable use of natural resources and a common vision on « landscape ecology ».

Note that our main conclusions are developed in the Executive Summary (page 2).

FALEMINDERIT!*




** Thank you!*