

Final Report

Group Training Course on

Rangeland Plant Identification and Vegetation Classification



Jointly organized by the
Office de l'Elevage et des Pâturages (OEP) in Tunisia
and the
**International Center for Agricultural Research
in the Dry Areas (ICARDA)**

19 - 21 February 2019
Tabarka, Tunisia

Introduction

Rangeland degradation is an issue which has raised global concern as it affects pastoralists whose livelihood relies on healthy rangelands (Friedel et al. 2003). Overexploitation and the challenging environmental conditions have increased the possibilities of degradation through, for example, soil erosion and uncontrolled grazing (Sparrow et al. 2003). Population growth and unsupervised agricultural practices have increased degradation levels (Wessels et al. 2004). Rangelands are recognized for their importance and value in providing society with valuable products and services, such as firewood and mitigating climate change (Milder et al. 2010). In such ecosystems, effective management is needed for sustainable plant growth and survival, as rainfall availability is unreliable, uncontrolled grazing is high, and soil nutrient status is poor (Safriel 2009).

When implementing rangeland management strategies and decisions, it is important to know pastoral plants by name and knowing their growth habits, response to grazing, and other characteristics (Landsberg et al. 2003). This knowledge is important to focus on changes in the abundance of all plant species observed along grazing gradients in rangelands, reflecting a realistic range of long-term grazing impacts. Plants can be classified and grouped in many different ways such as growth characteristics, which will be important in establishing the grazing-sensitive species most vulnerable to potential extinction (Landsberg et al. 2003). In light of this, the training workshop held in Tabarka targeted delivering knowledge to participants on the different important characteristics of pastoral plants in Tunisia. The training also aimed at educating participants on principles of classification of rangeland plants, using both structural and floristic characteristics.

Objectives

The course training session was implemented to equip participants with plant identification skills. The target audience were engineers and technicians of Office of Livestock and Pasture (OEP) and other departments/Universities.

The Course topics

This all-day course covers methods for identifying plants found in both wetland and arid rangeland. Participants will learn common terminology for describing plants and gain an introduction to the major forage species, common native plants, and largest plant families in the area.

Participants

The training took place in Tabarka during 19- 21 February 2019. The participants representing the Office de l'Elevage de des Pâturages (OEP) Tunis, Ben Arous, Bizerte, Kasserine, Beja, Siliana, Gafsa, Kairouan, Ariana, Jandouba, Mahdia, Kef, Sidi Bouzid, Zaghouan, Nabeul et Medenine.

Minutes of the plant identification training course

First day: 19-02-2019

- The first presentation was about rangeland importance, presented by Dr. Mouldi Gamoun. He showed that Tunisian's rangelands have important ecological services such as carbon sequestration, livelihood sustenance and cultural roles. Dr. Mouldi highlighted the best practices needed for sustainable production of rangelands for the long-term future and supply of rangeland resources such as firewood and forage.
- Flora of Tunisia: in this section, Mme. Zeineb Ghrabi, Professor of Botany, presented the floristic diversity of Tunisia including the total number of endemic species present. She then cited the main plant communities in Tunisia, information on the names, taxonomic relationships, country-wide distributions, and morphological characteristics of main plants native of Tunisia. Mme. Zeineb further explained the role phytosociological surveys and their importance towards ecosystem resilience.
- Dr. Mouldi explained the background for scientific names of plants followed by citing the main perennial and annual species of arid rangeland in Tunisia by their common and scientific names.

Second day: 20-02-2019

- Field trip: The field trip aimed to perform a phytosociological survey in meadow and forest rangeland of Ain Draham. The workshop participants were divided into two groups to collect the different plant present in the area for identification. After species identification, 5 phytosociological surveys were conducted. The collected species were brought for creating an example of how-to curate species for the herbarium specimens.

Third day: 21-02-2019

- Dr. Mouldi explained how to enter the data of phytosociological surveys in excel and how to perform the field data analysis: Factorial Correspondence Analysis and Hierarchical Clustering (Dendrogram and classification) using SPSS's Statistics Software. Dr Mouldi also took the participants through the exercise of data entry and analysis on SPSS after dividing the participants in different working groups.
- Mme. Zeineb then took the participants through the plant identification exercise in work groups
- After the plant identification exercise, there was a general discussion and perspectives on how to further empower the participants on the necessary skills of plant identification, which the participants were keen to be involved in further courses hosted by ICARDA.
- Closing



Figure 1. Participants during the plant identification training course held in Tabarka, Tunisia.

Rangelands Plant Identification and Vegetation Classification

Training Program

19 - 21 February 2019

Tabarka, Tunisia



Rational: The study of botany is the study of plant identification and classification. Related plants have similar characteristics, and botanists have placed them in groups according to these characterizations of similarity. In essence, botanists have created a nomenclature system where all plants with one characterization are placed in one family, all the plants with another characterization are placed in another family, and so forth. The better you can recognize these characterizations, the better you will be able to identify plants.

Unfortunately, very few people know about these characteristics when they start identifying plants. Most people pick up a book of color photos and flip through hundreds of pages of pictures hoping to find a match. When they finally find a possible match, then they may not know the specific parts well enough to determine if they have the correct answer or something totally unrelated that looks superficially similar.

دراسة علم النبات هي دراسة تحديد وتصنيف النبات. النباتات ذات الصلة لها خصائص مشابهة ، وقد وضعها علماء النبات في مجموعات وفقاً لمقاييس التشابه. في جوهرها ، ابتكر علماء النبات نظام تسمية حيث توضع جميع النباتات ذات التوصيف الواحد في عائلة واحدة ، وتوضع جميع النباتات ذات خصائص أخرى في عائلة أخرى ، وهكذا دواليك. كلما كان من الأفضل التعرف على هذه الوصف ، كان من الأفضل التعرف على النباتات. للأسف ، عدد قليل جداً من الناس يعرفون هذه الخصائص عند بدء تحديد النباتات. يلجأ الكثيرون إلى كتب تحتوي على صور ملونة ويقلبون مئات الصفحات من الصور التي تأمل في العثور على تطابق. عندما يجدون في نهاية المطاف تطابقاً محتملاً ، قد لا يعرفون الأجزاء المحددة بشكل جيد بما يكفي لتحديد ما إذا كان لديهم الإجابة الصحيحة أو شيء غير مرتبط تماماً ويبدو مشابهاً بشكل سطحي.

Objectives: Course training session for anyone interested in learning how to identify pastoral plants, such as engineers and technicians of Office of Livestock and Pasture (OEP) and other departments/Universities or interested enthusiasts.

أهداف الدورة التدريبية: دورة تدريبية للمشاركين في تعلم كيفية التعرف على النباتات الرعوية، مثل مهندسين و فنيين من ديوان تربية الماشية و توفير المرعى ومن مؤسسات أخرى ، أو المتحمسين المهتمين.

The Course topic: This all-day course covers methods for identifying plants found in both wetland and arid rangeland. Participants will learn common terminology for describing plants and gain an introduction to the major forage species, common native plants, and largest plant families in the area.

موضوع الدورة: تغطي هذه الدورة التدريبية طرق تحديد النباتات الموجودة في كل من الأراضي الرطبة والمراعي القاحلة. سوف يتعلم المشاركون المصطلحات الشائعة لوصف النباتات والحصول على مقدمة لأنواع النباتات الرعوية الرئيسية، والنباتات المحلية الشائعة، وأكبر عائلات نباتية في المنطقة.

- ☐ The availability of 4 or 5 laptops for data analysis is preferred

Rangelands Plant Identification and Vegetation Classification

Training Program

19 - 21 February 2019

Tabarka, Tunisia

Tuesday 19 February 2019

Tuesday 19 February 2019		
09:00 – 09:30	Registration Opening note and course outline: Mr. Fathi gouhis (OEP) Pr. Zeineb Ghrabi (INAT) Dr. Mouldi Gamoun (ICARDA)	Participants
09:30 – 10:00	Coffee-Break	
10:00 – 11:00	Rangeland ecosystem services	Dr. Mouldi
11:00 – 12:00	Flora of Tunisia: Diversity and endemic species	Dr. Ghrabi
12:00 – 13:00	Plant taxonomy and systematics	Dr. Ghrabi
13:00 – 14:00	Lunch	
14:00 – 15:30	Scientific names of plants: Presentation of the most important perennial forage species	Dr. Mouldi
15:30 – 15:45	Coffee-Break	
15:45 – 17:00	Scientific names of plants: Presentation of the most important annual forage species	Dr. Mouldi

Identification de plantes pastorales et classification des végétaux Programme de formation 19 - 21 Février 2019 Tabarka, Tunisie

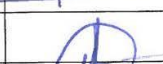
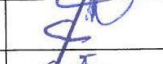
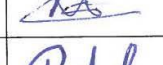
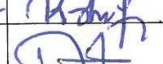
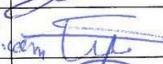
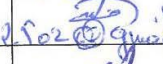
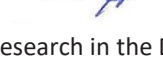
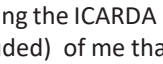
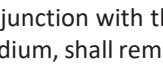
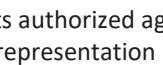
Wednesday 20 February 2019		
08:00 – 16:00	Ecology field trips to Ain Draham - Field identification of the most common plant families in visited area - The use of phytosociological methods in ecological investigations: The Braun-Blanquet method.	All
		
Thursday 21 February 2019		
08:30 – 11:00	- Practical session: Identification of some plants - Field data introduction with Excel - Field data analysis: Factorial Correspondence - Field data analysis: Hierarchical Clustering (Dendrogram and classification)	Working groups
11:00 – 11:30	Coffee break	
11:30 – 12:00	General discussion	All
12:00 – 12:30	Closing	
12:30 – 13:00	Lunch	
13:30	Departure	All

References

- Friedel, M.H., Sparrow, A.D., Kinloch, J.E. and Tongway, D.J., 2003. Degradation and recovery processes in arid grazing lands of central Australia. Part 2: vegetation. *Journal of Arid Environments*, 55(2), pp.327-348.
- Landsberg, J., James, C.D., Morton, S.R., Müller, W.J. and Stol, J., 2003. Abundance and composition of plant species along grazing gradients in Australian rangelands. *Journal of Applied Ecology*, 40(6), pp.1008-1024.
- Milder, J., Scherr, S. and Bracer, C., 2010. Trends and future potential of payment for ecosystem services to alleviate rural poverty in developing countries. *Ecology and Society*, 15(2).
- Safriel, U., 2009. Deserts and desertification: Challenges but also opportunities. *Land degradation & development*, 20(4), pp.353-366.
- Sparrow, A.D., Friedel, M.H. and Tongway, D.J., 2003. Degradation and recovery processes in arid grazing lands of central Australia Part 3: implications at landscape scale. *Journal of arid environments*, 55(2), pp.349-360.
- Wessels, K.J., Prince, S.D., Frost, P.E. and Van Zyl, D., 2004. Assessing the effects of human-induced land degradation in the former homelands of northern South Africa with a 1 km AVHRR NDVI time-series. *Remote Sensing of Environment*, 91(1), pp.47-67.

Group Training Course on Rangeland Plant Identification and Vegetation Classification

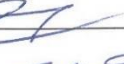
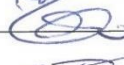
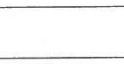
Participants list
 19 - 21 February 2019
 Tabarka, Tunisia

N°	Nom et Prénom	Institution	Email	Signature	*Permission
1	Malchouf N° EL Hal	OEP P.	96 533 862		☒
2	Yahia Ridha	OEP Nedime	A°adming@hotmail.fr		☒
3	Soltani Sami	OEP B. Mous			☒
4	Timouni Hedi	OEP Kasserine			☒
5	Mehergeni Abtarah	OEP B. Mous	—		☒
6	Mabrouk Ali	OEP Sili			☒
7	Zouali Nouad	OEP Kasserine			☒
8	Rahali Khalil	OEP Sili	Khalil rahali@hotmail.fr		☒
9	Ezzeddine Mansour	OEP Gafsa	—		☒
10	Nouri Ayman	OEP Gafsa	nouri.ab@hotmail.fr		☒
11	Bayoudh Riadh	OEP Bizerte			☒
12	Ahmed Ali	OEP Kasserine	Sarhanali6162@yahoo.fr		☒
13	NEFFATE Jihene	OEP Ariana	jneffate@yahoo.fr		☒
14	Khalid Zouari	OEP Kasserine	Khalid Zouari700@gmail.com		☒
15	Neeloumi Salim	OEP Jendouba	sa.limneeloumi@gmail.com		☒
16	Amelouin Ned	OEP Kasserine	mohamed.amelouin2002@gmail.com		☒
17	Fry Zouar	OEP Kasserine	98 98 0053		☒
18	ENNA Welyai	OEP Kasserine	96 114 265		☒
19	AYdi Kriis	OEP Kasserine	21 7644 68		☒
20	Hanzouli Houcine	OEP Kasserine	hanzouli.houcine@yahoo.fr		☒

*By checking the box, I am granting the International Centre for Agricultural Research in the Dry Areas (ICARDA) to use, reuse, publish, and/or republish in whole or in part, in any medium (including the ICARDA website, social media, and publication) the photographs (individually or in a group in which I am included) of me that are taken during this event without restrictions as to changes or alteration, as they are used in conjunction with the representation and promotion of the Centre. I understand that all such recordings, in whatever medium, shall remain solely the property of ICARDA, and I shall have no right or interest in them. I permit ICARDA and its authorized agents to use my image, name, email and/or business title, as they are used in conjunction with the representation and promotion of the ICARDA.

Group Training Course on Rangeland Plant Identification and Vegetation Classification

Participants list
 19 - 21 February 2019
 Tabarka, Tunisia

N°	Nom et Prénom	Institution	Email	Signature	*Permission
21	Choukri R. Tarek	O.F.P. de Bengali	tarekchoukri1978 @gmail.com		☒
22	Zuhair Hady Amra	OEP Zghana	—		☒
23	Wakel Abdel Boun	OFP Nakoul	wakel.ing@gmail.com		☒
24	Farkous Beomade	Zaglan	—		☒
25	Felhi Gaudis	OEP/DRFP	felhi.gaudis@zghana.tn		☒
26	Ghachem Zou B	INAT	zghachem@yohs.fr		☒
27	Gamoun Moulde	ICARDA	m.gamoun@cgiar.org		☒
28	Adel Setti	OFP Tunis	—		☒
29					☐
30					☐
31					☐
32					☐
33					☐
34					☐
35					☐
36					☐
37					☐
38					☐
39					☐
40					☐

*By checking the box, I am granting the International Centre for Agricultural Research in the Dry Areas (ICARDA) to use, reuse, publish, and/or republish in whole or in part, in any medium (including the ICARDA website, social media, and publication) the photographs (individually or in a group in which I am included) of me that are taken during this event without restrictions as to changes or alteration, as they are used in conjunction with the representation and promotion of the Centre. I understand that all such recordings, in whatever medium, shall remain solely the property of ICARDA, and I shall have no right or interest in them. I permit ICARDA and its authorized agents to use my image, name, email and/or business title, as they are used in conjunction with the representation and promotion of the ICARDA.

Personal information including Name, Business Title, Email, Phones, Images and GPS points included in this report have been authorized in writing or verbally by the data subject.

Personal information including Name, Business Title, Email, Phones, Images and GPS points included in this report have been authorized in writing or verbally by the data subject