THE SCHOOL FOR FIELD STUDIES

Wildlife Coexistence in Agricultural Landscapes

SFS 3265

Syllabus
4 credits

The School for Field Studies (SFS)
Center for Sustainable Food Systems
Greve in Chianti, Italy

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise. Course content may vary from semester to semester.

www.fieldstudies.org

COURSE CONTENT SUBJECT TO CHANGE

Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.

SFS programs are different from other travel or study abroad programs. Each iteration of a program is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control. For example:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;

- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;

- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that may present. Please be flexible.

Course Overview

The necessity and urgency of halting and reversing the loss of biodiversity has been repeatedly called for by international organizations such as the UN, FAO, IPBES, EU, national governments and NGOs. More specifically, official strategies and reports such as the UN's Millennium Ecosystem Assessment (2005), the UN' s Agenda 2030 (2015), the IPBES Global Assessment Report on Biodiversity and Ecosystem Services (2019), the FAO's Strategy on Mainstreaming Biodiversity across Agricultural Sectors (2020), the EU's Biodiversity Strategy (2020), and the UN's Kunming-Montreal Global Biodiversity Framework (2022), are defining goals, targets and actions to reverse the loss of biodiversity and enhance ecological restoration.

However, when it comes to implementing these strategies and action plans on the ground, there is the need to understand what the problems and opportunities of ecological restoration at the local level are. This is particularly true for food systems in densely populated Europe, where almost no pristine natural area exists below 2000 meters altitude. Addressing the mitigation of food system's impact on the environment to halt the loss of biodiversity, this program is adopting a change of perspective by focusing on the understanding, analysis and assessment of the reality of ecological restoration in making food systems more sustainable. By looking at what is happening in Tuscany and Abruzzo, students will explore the ecological, economic, and sociocultural complexities of sustainably managing ecological restoration in ecosystems historically used by food systems.

This interdisciplinary course explores the complex dynamics of the implementation on the ground of vision, goals, and targets set up by public institutions and the requests that come from communities that live in rural Central Italy. In particular, the transformative targets and actions deemed necessary to achieve the overall goal of "living in harmony with nature by 2050", although to be initiated and completed by 2030, will be analyzed at a local level in the specific contexts of Central Italy.

Problems and opportunities will be explored which that may arise from the transformative processes of rewilding, as well as an in-depth overview of strategies, agroecological practices, policy tools and instruments available to local government, NGOs, users and other stakeholders, to manage Nature's return sustainably. There will be visits to different rural communities, protected areas and seminatural and agricultural ecosystems, including vineyards and olive groves, arable lands, natural pastures, oak, beech, salt marshes and wetlands. A trip to the Apennine Mountain range looking at the Marsicano Bear and wolf populations with scientists, researchers and farmers with their herd of goats. Chianti hilly landscape and Maremma flat coastal areas, will enable a clear understanding of the complexities to be taken into consideration to achieve sustainable rewilding of Central Italy.

Learning Objectives

Students will be able to:

- **Explain** traditional community-based agricultural practices and **analyze** how these systems coexist with the challenges posed by local wildlife.
- **Identify** signs of wildlife presence in the field and **demonstrate** basic techniques for setting up and managing wildlife monitoring programs.
- **Describe** the historical and current trends in the population dynamics of Marsican bears and wolves in Central Italy.
- **Design** a rewilding project that incorporates input from key stakeholders, including regional parks, rangers, farmers, shepherds, and researchers.
- **Evaluate** the primary challenges faced by contemporary farmers attempting to adopt or maintain traditional agricultural practices in the context of wildlife conservation.

Assessment

The evaluation breakdown for the course is as follows:

Assessment Item	Value (%)
Participation	10
Field Exercise 1	20
Field Exercise 2	20
Assignment	20
Final Exam	30
TOTAL	**100**

Participation (10%)

Everybody should be prepared for each academic session. This implies reading the materials for each session with enough detail to be able to ask relevant questions, and to participate in analytical discussions about the key issues. Active participation during classes, discussions, assignments, and hikes is expected. Participation will be evaluated by looking at students' attention during classes, appropriate and timely questions and comments, contribution to teamwork and respectful behavior.

Field Exercise 1 (20%) wild boar and roe deer monitoring

The field exercise will give students hands-on experience with a basic research technique: creating and administering survey questionnaires. The students will collect data and evaluate the pressure of wildlife, specifically wild boar and roe deer, on a farm in Greve in Chianti. The filed exercise will focus on the evaluation of the solutions the farmer has chosen, traditional or innovative.

Field Exercise 2 (20%) Bear and Wolf Population Monitoring Techniques

The field exercise will give the students the possibility to learn, hands-on, how bear and wolf populations are monitored in a National Park. The students will learn what techniques are available. The field exercise will give the students the opportunity to work side by side with park staff aiding them in setting up and checking the monitoring tools.

Assignment (20%)

Creating 10-12 minutes film on rewilding in Italy: This assignment will run throughout summer session. The assignment requires students to work in three groups to develop a short film of 10-12 minutes to create public awareness about rewilding and the relationship between agriculture and wildlife, challenges, and opportunities. Each group will discuss and agree on a theme on which to focus their story. Students will use open-source video editing software of their choice. The idea is to combine knowledge gathered during the course, including field exercises, and storytelling skills. The videos will be considered for use in SFS-Italy social media platforms

Final Exam (30%)

The final exam will be based on material covered in lectures, readings, and field experiences. The exam will be a group-based design of a rewilding framework that can be applied to different settings. The project will focus on the needs and challenges of the different stakeholders, and the traditional and/or innovative solutions, that can be implemented. There will be a course review session prior to the exam.

Grading Scheme

A	95.00 - 100.00%	B+	86.00 - 89.99%	C+	76.00 - 79.99%	D	60.00 - 69.99%
A-	90.00 - 94.99%	B	83.00 - 85.99%	C	73.00 - 75.99%	F	0.00 - 59.99%
		B-	80.00 - 82.99%	C-	70.00 - 72.99%		

General Reminders

Honor Code/Plagiarism – SFS places high expectations on their students and we hold students accountable for their behaviors. SFS students are held to the honor code below. SFS has a zero-tolerance policy towards student cheating, plagiarism, data falsification, and any other form of dishonest academic and/or research practice or behavior. Using the ideas or material of others without giving due credit is cheating and will not be tolerated. Any SFS student found to have engaged in or facilitated academic and/or research dishonesty will receive no credit (0%) for that activity.

> *"SFS does not tolerate cheating or plagiarism in any form. While participating in an SFS program, students are expected to refrain from cheating, plagiarism and any other behavior which would result in a student receiving credit for work which they did not accomplish on their own. Students are expected to report any instance of cheating or plagiarism by others."*

Deadlines – Deadlines for written and oral assignments are instated to promote equity among students and to allow faculty ample time to review and return assignments before others are due. As such, deadlines are firm; extensions will only be considered under extreme circumstances. Late assignments will incur a penalty of 10% of your grade for each day you are late. After two days past the deadline, assignments will no longer be accepted. Assignments will be handed back to students after a one-week grading period. Grade corrections for any assessment item should be requested in writing at least 24 hours after assignments are returned. No corrections will be considered afterwards.

Content Statement – Every student comes to SFS with unique life experiences, which contribute to the way various information is processed. Some of the content in this course may be intellectually or emotionally challenging but has been intentionally selected to achieve certain learning goals and/or showcase the complexity of many modern issues. If you anticipate a challenge engaging with a certain topic or find that you are struggling with certain discussions, we encourage you to talk about it with faculty, friends, family, the HWM, or access available mental health resources.

Participation – Since we offer a program that is likely more intensive than you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the course is mandatory, it is important that you are prompt for all activities, bring the necessary equipment for field exercises and class activities, and simply get involved.

AI Usage in Assignments – SFS acknowledges the growing role of artificial intelligence (AI) tools in education and professional settings. While AI can be a valuable resource for learning and productivity, its use must align with the learning goals and integrity of each assignment. For this reason, students are encouraged to discuss the acceptable uses of AI for each assignment with the instructor. If you wish to

use AI for any part of an assignment, consult with the instructor beforehand to ensure that its use adheres to the academic expectations of the course. Let's work together to navigate this evolving landscape responsibly!

Course Content

Type: O: Orientation, **D**: Discussion, **L**: Lecture, **FL:** Field Lecture, **FEX:** Field Exercise

*Readings in **Bold** are required.

No	*Title and outline*	*Type*	*Time (hrs)*	*Required Readings*
	Pre-departure reading			**Hart, Haigh, and Ciuti (2023)**
1	**Course Introduction** Objectives, contents and structure, participation and expectations	O	1.0	
2	**Traditional farming** Landscape, history and culture	FL	2.0	**Oglethorpe, S., (2014)**
3	**Introduction to rewilding**	L	1.0	**Zoderer B. M., Marsoner T., Tasser E. (2024)**
4	**Biodiversity conservation policy in the EU** EU Biodiversity Strategy, EU restoration Law, EU Natura 2000 Network	L	2.0	**Hodge et al., (2015)** **Gowdy J., (2019)** Blackstock, K.L., et al. (2021). European Commission (2011).
5	**Agricultural multifunctionality and the conservation of local agrobiodiversity**	FL	2.0	**Renting et al. (2009)**
6	**Wildlife Conflict Management** Solutions from a shepherd's perspective	FL/FEX1	2.0	**Gervasi, V., et al. (2021)**
7	**Visit to Orbetello Lagoon** Sustainability initiatives of a small artisanal fishery cooperative in the Orbetello's lagoon	FL	1.0	Penca et al. (2021)
8	**Visit to WWF Station at Orbetello lagoon** Biodiversity conservation and assessment of wetland habitat ecosystem services	FL; GL	4.0	
10	**Biodiversity conservation in the Mediterranean Scrub, coastline and marine rewilding**	FL	1.0	Numa C., (2011)
11	**Visit to Regional Park of Maremma** Wildlife and agriculture conflict management in the regional park	FL	2.0	
12	**Maremma key concepts and discussion**	D	1.0	

13	**Wildlife and agriculture conflict management** Wild boar and roe deer - FEX 1	FEX	2.0	
14	**Bear and Wolf Populations in the National Park** Ethology, ecology	GL; FL	2.0	To be decided by guest lecturer
15	**Wildlife and agriculture conflict management** Bear and wolf monitoring - FEX 2	FEX	2.0	
16	**Nature and the EU's Common Agriculture Policy** Policy instruments for biodiversity conservation	L	1.0	**Hodge et al. (2015)** European Commission (2011)
17	**Rewilding rivers**	FL	2.0	**Harvey & Henshaw (2023)**
18	**Wildlife and agriculture conflict management** Wolves and Bears	GL	2.0	To be decided by guest lecturer
19	**Wildlife and agriculture conflict management** Goat farmers challenges between traditional and contemporary approaches	GL	2.0	
20	**Abruzzo recap** Discussion and FEX 2 Presentation	L	1.0	
21	**Assessing ecosystem services delivered by an agricultural landscape**	FL	2.0	**Soy-Massoni E. et al., (2018)**. **Rounsevell, Metzger, Walz, (2019)**
22	**Sustainability from theory to practice**	FL	1.0	
23	**Forest cover and management in EU and Central Italy**	GL	2.0	
24	**Sustainable Forestry Management in the Casentino region**	FL	2.0	
25	**Wolf/shepherds conflict management** The Guardian Dogs project (Nadia Cappai) National Park perspective	GL; FL	2.0	To be decided by guest lecturer
26	**Sheep farmers challenges between traditional and contemporary approaches**	GL	2.0	To be decided by guest lecturer
27	**The future of agriculture** Agroecology and rewilding - their relationships	L; D	1.0	
28	**Course review**		1.0	
29	**Final exam group work**		2.0	
30	**Course wrap up, discussion, and exam review**	D	2.0	
	Total		**50**	
	UMN Instructional Hours*		**60**	

**UMN defines an instructional hour as a 50-minute block. SFS syllabi are written in full 60-minute hours for programming purposes. Therefore 50 full hours = 60 UMN instructional hours (for four credit courses) and 25 full hours = 30 UMN instructional hours (for two credit courses).*

Reading List

*Readings in **Bold** are required

1. **Barthel, S., C. L. Crumley, and U. Svedin. (2013).** Biocultural refugia: combating the erosion of diversity in landscapes of food production. Ecology and Society 18(4): 71. http://dx.doi.org/10.5751/ES-06207180471

2. **Batary, P., Dicks, L., Y., Kleijn, D. and Sutherland, W., J., (2015).** The role of agri-environment schemes in conservation and environmental management, Conservation Biology, Volume 29, No. 4, 1006–1016

3. **Bennett et al., (2015).** Biodiversity, ecosystem services and human well-being, Current Opinion in Environmental Sustainability 2015, 14:76–85

4. Blackstock, K.L., Novo, P., Byg, A., Creaney, R., Juarez Bourke, A., Maxwell, J.L., Tindale, S.J., Waylen, K.A., (2021). Policy instruments for environmental public goods: Interdependencies and hybridity, Land Use Policy, Volume 107, 2021, 104709, ISSN 0264-8377, https://doi.org/10.1016/j.landusepol.2020.104709

5. **Brockerhoff E. G., et al., (2019).** A rights revolution for nature, Science 363 (6434), 1392-1393.

6. European Commission (2011). Investing in Natura 2000: for nature and people

7. European Commission (2020). A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 20.5.2020, COM(2020) 381

8. **European Commission, (2020).** The state of nature in the European Union: Report on the status and trends in 2013 - 2018 of species and habitat types protected by the Birds and Habitats Directives, COM (2020) 635 final, Brussels, 15.10.2020

9. Fernández N., Torres A., Wolf F., Quintero L., Pereira H. M., (2020). Boosting Ecological Restoration for a Wilder Europe, German Centre for Integrative Biodiversity Research (iDiv) and Martin-Luther-Universität Halle-Wittenberg, DOI: https://dx.doi.org/10.978.39817938/57

10. **Gervasi, V., Salvatori, V., Catullo, G. *et al. (2021)*** Assessing trends in wolf impact on livestock through verified claims in historical vs. recent areas of occurrence in Italy. *Eur J Wildl Res* **67**, 82 (2021). https://doi.org/10.1007/s10344-021-01522-1

11. **Gowdy J., (2019).** Our hunter-gatherer future: Climate change, agriculture and uncivilization, Elsevier, https://doi.org/10.1016/j.futures.2019.102488

12. **Hart E., Haigh A., Ciuti S. (2023),** A scoping review of the scientific evidence base for rewilding in Europe, Biological Conservation, Volume 285, 2023,

13. **Harvey, G. L., & Henshaw, A. J. (2023).** Rewilding and the water cycle. WIREs Water, 10(6), e1686. https://doi.org/10.1002/wat2.1686

14. **Hodge et al., (2015).** The alignment of agricultural and nature conservation policies in the European Union, Conservation Biology, Volume 29, No. 4, 996–1005, DOI: 10.1111/cobi.12531

15. **Jacobs, S., et al., (2016).** A new valuation school: Integrating diverse values of nature in resource and land use decisions, Ecosystem Services 22 (2016) 213–220

16. **Jandl R., Spathelf P., Bolte A., Prescott C. E., (2019).** Forest adaptation to climate change—is nonmanagement an option?. Annals of Forest Science (2019) 76: 48, https://doi.org/10.1007/s13595-0190827-x

17. **Jepson P. (2018).** Recoverable Earth: a twenty-first century environmental Narrative, Ambio, Springer.

18. **Kumar P., et al. (2013).** The economics of ecosystem services: from local analysis to national policies, Current Opinion in Environmental Sustainability (2013), Volume 5, Issue 1, March 2013, Pages 78-86 http://dx.doi.org/10.1016/j.cosust.2013.02.001

19. **Meyfroidt et al., (2022).** Ten facts about land systems for sustainability, PNAS 2022 Vol. 119 No. 7 e2109217118, https://doi.org/10.1073/pnas.2109217118

20. Millennium Ecosystem Assessment (2005). Ecosystems and Human Well-being: Synthesis. Island Press, Washington DC. pp. 1-24.

21. Numa C., The Challenges for Biodiversity Conservation in the Mediterranean (2011), IEMED, 2011 https://www.iemed.org/publication/the-challenges-for-biodiversity-conservation-in-the-mediterranean/

22. **Oglethorpe, S., (2014)**, The End of Sharecropping in Central Italy after 1945: The Role of Mechanisation in the Changing Relationship between Peasant Families and Land, Rural History, Volume 25, Issue 2, https://doi.org/10.1017/S0956793314000089

23. Penca, J., Said, A., Cavallé, M., Pita, C., Libralato, S., (2021). Sustainable small-scale fisheries markets in the Mediterranean: weaknesses and opportunities. Maritime Studies (2021), Springer.

24. **Pretty, J., (2018).** Intensification for redesigned and sustainable agricultural systems, Science 362, eaav0294

25. **Purvis Ben, Miao Yong, Robinson Darren, (2019).** Three pillars of sustainability: in search of conceptual origins, Sustainability Science (2019) 14:681–695, https://doi.org/10.1007/s11625-018-0627-5

26. **Renting, H., Rossing, W.A.H., Groot, J.C.J., Van der Ploeg, J.D., Laurent, C., Perraud, D., Stobbelaar, D.J., Van Ittersum, M.K. (2009**). Exploring multifunctional agriculture. A review of conceptual approaches and prospects for an integrative transitional framework. Journal of Environmental Management, Elsevier

27. **Rounsevell M. D. A., Metzger M. J., Walz A., (2019).** Operationalising ecosystem services in Europe, Regional Environmental Change, https://doi.org/10.1007/s10113-019-01560-1

28. **Soy-Massoni E., Monllor N., Nuss S., Markuszewska I., and Tanskanen M., (2018).** Landscape Eaters: supporting rural development and ecosystem services delivery by eating, Agriculture & Food, Volume 6.

29. **Zoderer B. M., Marsoner T., Tasser E. (2024)** Protecting wilderness or rewilding? An ecoregion-based approach to identifying priority areas for the protection and restoration of natural processes for biodiversity conservation, Journal for Nature Conservation, Volume 81, 2024.