

## **Polska wersja**

### **Ogłoszenie o konkursie na stanowisko postdoc w projekcie naukowym\***

\*niniejsze ogłoszenie nie stanowi oferty w rozumieniu kodeksu cywilnego

**Gdzie:** Polska Akademia Nauk, Instytut Ochrony Przyrody w Krakowie,

**Wynagrodzenie:** łączna kwota 10000zł/miesiąc (ok. 6500 netto) przez 3 lata, możliwość ubiegania się o własny grant badawczy afiliowany w tym samym instytucie – w trakcie trwania projektu oraz po jego zakończeniu

**Dodatki:** Premie finansowe za publikacje w czasopismach JCR

**Data rozpoczęcia:** 1 października 2022

### **Współpraca międzynarodowa:**

- tygodniowa wizyta w Australii (prof. Hugh Possingham's Lab)

- tygodniowa wizyta w Chinach (prof. Johannes Knops Lab)

**Konferencje:** 1 międzynarodowa konferencja w Oceanii lub Ameryce Północnej

### **Rozwój zawodowy:**

doskonalenie umiejętności w zakresie:

współkierowanie pracą doktoranta

pisanie własnego grantu badawczego

publikowanie w prestiżowych czasopismach naukowych

rozwój umiejętności komunikacyjnych i miękkich

zaawansowane statystyki i wizualizacja danych

**Środowisko pracy:** będziesz częścią współpracującej, przyjaznej, dynamicznej, zróżnicowanej grupy badawczej, która również ocenia równowagę między życiem zawodowym a prywatnym

**Rozrywka:** wyjazdy integracyjne itp.

**Kierownik projektu:** dr Magdalena Lenda [Magdalena.lenda1@gmail.com](mailto:Magdalena.lenda1@gmail.com),  
lenda@iop.krakow.pl

### **Grant we współpracy z:**

prof. Hugh Possinghamem z University of Queensland, Brisbane, Australia

<https://scholar.google.com.au/citations?user=ISYOB3cAAAAJ&hl=en>

prof. Johannesem Knopsem z Xi'an Jiaotong Liverpool University in Suzhou, Jiangsu, China.

<https://scholar.google.com/citations?user=wQzqO0MAAAAJ&hl=en>

### **Terminy na składanie dokumentów oraz rozmów kwalifikacyjnych:**

dokumenty: 19 sierpnia 2022 – do dr Magdalena Lenda, mailowo:

[Magdalena.lenda1@gmail.com](mailto:Magdalena.lenda1@gmail.com), lenda@iop.krakow.pl

rozmowy: 19-30 sierpnia 2022

## Who are we searching for?

### Twoje kwalifikacje:

- doskonała znajomość języka angielskiego w mowie i piśmie (certyfikat lub główny autor w co najmniej 5 publikacjach w języku angielskim lub co najmniej 2 letnie doświadczenie jako post-doc w dowolnym kraju anglojęzycznym)
- potwierdzona publikacjami umiejętność pisania i publikowania artykułów naukowych, pierwszoautorskie prace najlepiej o IF wyższym lub równym 4
- potwierdzona publikacjami umiejętność wykonywania zaawansowanych analiz statystycznych
- doświadczenie w zaawansowanych analizach GIS
- potwierdzone publikacjami lub edukacją doświadczenie w zakresie modelowania matematycznego
- doświadczenie w uczeniu mile widziane
- każde doświadczenie w mówieniu lub pisaniu publicznie o nauce byłoby mile widziane
- podstawowa wiedza o ekonomii
- znajomość modeli współdzielenia gruntów/oszczędzania ziemi
- znajomość modeli rozmieszczenia gatunków

### Co będziesz zrobić?

Postdoc będzie głównie pracował nad tym tematem: "Land sparing is the best strategy only in regions where agriculture encroaches into pristine and intact areas, but land sharing is better in areas already highly altered by agriculture such as cultural landscapes"

ten temat będzie wymagał następujących czynności i obowiązków:

- przegląd systematyczny i metaanalizy
- zaawansowane analizy przestrzenne i statystyczne
- doradzanie doktorantowi,
- nadzorowanie analiz statystycznych w pracy doktorskiej doktoranta,
- udział w zbieraniu danych w terenie o ptakach, zapylaczach, pająkach, mrówkach\*
- \*większość takich danych będzie gromadzona przez asystentów terenowych, doktoranta i kierownika projektu
- \* dodatkowe pieniądze zabezpieczone w tym projekcie na pokrycie kosztów podróży w terenie i pomocy asystentów terenowych
- prowadzenie warsztatów szkoleniowych uczących zaawansowanych statystyk i modelowania adekwatnych do zadań projektowych dla wszystkich członków grupy.
- budowanie modeli matematycznych ważnych w projekcie (współdzielenie/oszczędzanie terenu i gospodarka).
- \*przy pomocy wykwalifikowanego ekonomisty
- zaawansowane analizy GIS
- pisanie własnych maszynopisów
- będziesz zachęcany do rozwijania swoich zdolności w pracy naukowej jak i do pracy nad swoimi naukowymi pomysłami jako projektami pobocznymi
- będziesz zachęcany do napisania własnego grantu badawczego

**Pytania?** skontaktuj się z kierownikiem projektu: email: [Magdalena.lenda1@gmail.com](mailto:Magdalena.lenda1@gmail.com),

### Więcej szczegółów:

**Aim of the project:** An increasing demand for food production is one of the main concerns in and nature conservation and agronomy. There are modern theoretical strategies in spatial conservation landscape planning, attempting to solve the problem of feeding 9 billion people by 2050 and preserving biodiversity. One of them is the land sharing or land sparing framework proposed by researchers from Cambridge University in the Science magazine in 2005. Two concepts from classic landscape ecology were proposed to resolve this problem: 1) land sparing and 2) land sharing (Green et al. 2005). Land sparing involves intensifying agriculture in cropland and protecting intact, natural, or restored areas (so-called spared land). Land sharing involves improving the quality of the agricultural landscape by increasing crop mosaic area that is extensively managed; thus, it may be suitable for many wild species. Should we use land sparing which assumes intensification of agriculture on one hand and protection of intact remnant areas or release areas from agriculture and leave it for the natural succession? Or should we improve the quality of the agricultural landscape for biodiversity by increasing the share of more extensively managed crops in the mosaic (land sharing)? The land sharing/sparing dilemma has been mostly studied in intact, pristine, and tropical forests. Recent studies in such forests suggest that land sparing is a better strategy for sustaining species diversity and for agricultural production (Phalan et al. 2011; Kamp et al. 2015). However, in the Anthropocene, few pristine intact areas are remaining on Earth to be spared. Therefore, in many regions where human-wildlife relationships have been established in cultural landscapes with long agricultural traditions, new areas for nature conservation could be created from abandoned post-agricultural land. There are some ideas, such as the newly proposed “rewilding” strategy in Europe to set new areas for nature conservation by agricultural land abandonment or using previously abandoned post-agricultural land (Navarro 2012; Sylven 2015; Pereino et al. 2019). The European Union (EU) has also advised abandoning at least 5% of farmland for conservation purposes (“Greening policy”). Not all such ideas propose buffer zones to control the colonisation of invasive species, especially since sometimes areas for nature conservation may be too small to create buffer zones. In my project, we adapt the land sharing/sparing concepts to a fully managed landscape, which could be previously abandoned or is abandoned for nature conservation, as proposed in the “rewilding” and “greening” strategies. Thus, in this proposal, I define land sparing as the intensification of agriculture in cropland and abandonment of fields for nature conservation, and land sharing as increasing the crop mosaic area that is extensively managed. This definition is well established in the literature (Kamp et al 2015). Many studies have shown that abandoned agricultural land or land set-aside is highly threatened by the invasion of alien plant species that often create monocultures (Lenda et al. 2021). Such species disturb the natural succession (Gusev 2015) and decrease biodiversity (Moroń et al. 2009; Skórka et al. 2013). This is important because biodiversity in agricultural ecosystems has practical functions in ecosystem services, such as pollination, pest control, and nutrient cycling. Invasive alien plant species colonise abandoned farmland globally (Cramer et al. 2008) but the risk of plant invasions has never been addressed in the land sharing/land sparing conceptual framework. I predict that land sharing may be a profitable policy for sustaining biodiversity when the risk of invasion is high. This could be because land management practices may prevent biodiversity by damaging populations of invasive alien

species. The land sparing policy may be a threat to biodiversity if invasion risk is high, because spared land, which in this project refers to abandoned post-agricultural land, may be colonized by alien species. They may remain uncontrolled in early invasion stages; thus, alien invasive species may benefit from the land sparing strategy. Therefore, the aim of this project is to verify which strategy—land sparing or land sharing—is better for biodiversity, conservation of nature, and yield production in regions under varying risk of invasion of alien species.

### **The main questions to be addressed in the project**

The aim of this project is to verify which strategy—land sparing or land sharing—is better for biodiversity conservation and yield production in regions under varying risk of invasion of alien plant species.

Main hypothesis: If the invasion risk is high, land sharing is a better strategy for protecting biodiversity and ecosystem services than land sparing, allowing effective control of invasive species via fieldwork (data will be collected in field)

2. Is land sparing the best strategy only in regions where agriculture encroaches into pristine and intact areas, and land sharing - better in areas already highly altered by agriculture such as cultural landscapes?

To answer that question, we will perform systematic reviews and meta-analysis.

### **You will develop and advance your skills with us**

- advanced analyzes in R.
- advanced analyzes in GIS
- learn basics of Marxan (on a course in Australia or Europe) and MaxEnt (on a course in Europe or Australia)
- more advanced analyzes in these programs as you like
- collecting data for scientific papers from available databases and the Internet
- research planning
- write high-quality typescripts for scientific journals
- write research grants for the National Science Center
- soft skills (cooperation in a large research team, building lasting cooperation with scientists from abroad, methods of self-presentation, methods of short, effective communication of information in speech and writing)

### **Money issues**

- research (materials, costs of field staff, some species identification, business trips) financed by the National Science Center grant (Head of the grant – dr. Magdalena Lenda)
- 1 week internship with prof. Possingham in Australia, funded by a grant from the National Science Center
- 1 week internship with prof. Knops in China, funded by a grant from the National Science Center
- 1 international conference are financed by a grant from the National Science Center
- high bonuses for publications from the ministerial list (eg 12,000 PLN total amount for being the first or correspondence author in a journal for 140 points, more details of the bonus in the current regulations of bonuses for publications in the Institute), financed by the Institute of Nature Conservation, more information in the Institute's regulations

- you can apply for small (usually around PLN 1,000-10,000 per year) internal funds of the Institute of Nature Conservation - subsidies for young researchers for research minigrants; subsidies for mini-internships in Poland and abroad. More information in the Institute's regulations.
- you will be encouraged to apply for own grant – Sonata/Opus from National Science Centre which would provide extra salary and funds for your own research.

### **Working conditions**

- you will be part of a dynamic international team of scientists that has been cooperating for a long time and has already published about 10 high-grade scientific papers (publications, among others, in Ecology Letters, Conservation Biology)
- we value good communication, collaboration, stress-free problem solving, supporting environment and individual talents
- flexible working hours adapted to the work mode and effectiveness of team members
- we value our own ideas, including the interdisciplinary, even weird ones!

### **Recruitment**

1. An open competition which will include:

- CV - please attach a contact (e-mail address) to 3 people with whom you worked (e.g. the supervisor and members of his team or people from any previous work (bachelor's, master's, ornithological camps, nature valuation)
- cover letter
- your doctoral supervisor's opinion
- interview with the head of the project (Magdalena Lenda)
- an interview with the supervisor- Piotr Skórka, and one person from outside the team
- your questions to us

### **Required documents**

- diploma (PhD degree in biology/geography/ecology)
- confirmation of the knowledge of English at least at B2 level
- driving license (for inspection, please do not send scans)
- CV
- letter of motivation
- your doctoral supervisor's opinion
- signed General Data Protection Regulation (available form [sekretariat@iop.krakow.pl](mailto:sekretariat@iop.krakow.pl) ) please send it to the grant manager at the following address: [magdalena.lenda1@gmail.com](mailto:magdalenalenda1@gmail.com) and to [sekretariat@iop.krakow.pl](mailto:sekretariat@iop.krakow.pl)

### **References**

Kamp J, Urazaliev R, Balmford A *et al.* 2015. Agricultural development and the conservation of avian biodiversity on the Eurasian steppes: a comparison of land-sparing and land-sharing approaches. *J Appl Ecol* **52**: 1578-1587. <https://doi.org/10.1111/1365-2664.12527>

Lenda M, Skórka P, Knops JMH, *et al.* 2012. Plant establishment and invasions: an increase in a seed disperser combined with land abandonment causes an invasion of the

non-native walnut in Europe. *Proc Biol Sci* **279**: 1491-1497.

<https://doi.org/10.1098/rspb.2011.2153>

Lenda M, Skórka P, Kuszewska K, *et al.* 2021. Misinformation, internet honey trading and beekeepers drive a plant invasion. *Ecol Lett* **24**: 165-169.

<https://doi.org/10.1111/ele.13645>

Pe'er G, Dicks LV, Visconti P, *et al.* 2014. Agriculture policy EU, agricultural reform fails on biodiversity. *Science* **344**; 1090-1092. <https://doi.org/10.1126/science.1253425>

Perino A, Pereira HM, Navarro LM, *et al.* 2019. Rewilding complex ecosystems. *Science* **364**: eaav5570.

Phalan B, Onial M, Balmford A, *et al.* 2011. Reconciling food production and biodiversity conservation: Land sharing and land