

Part A. PERSONAL INFORMATION

CV date	11/03/2020
---------	------------

First and Family name	Alexandro B. Leverkus		
Researcher numbers	ResearcherID	AAG-7761-2019	

A.1. Current position

Name of Institution	University of Granada		
Department	Ecology		
Address and Country	Facultad de Ciencias, Av. Fuentenueva s/n, 18071 Granada		
Current position	Researcher	From	01/11/2019
Espe. cód. UNESCO	241713, 310602		
Key words	Fire ecology, ecological restoration, disturbance ecology, plant ecology, meta-analysis, ecosystem services, forest management		

A.2. Education

PhD	University	Year
Programme in Fundamental and Systems Biology	University of Granada	2015

A.3. JCR articles, h Index, thesis supervised...

My scientific output encompasses 38 peer-reviewed publications, 2 commercially exploited patents, and several technical and outreach publications. I have obtained 14 competitive funding grants awarded to my person and participated in 12 funded research projects. My 31 JCR-indexed papers are published in Q1 or Q2 journals of the categories Ecology, Multidisciplinary, Forestry, and Environ. Sci. This includes 14 papers as lead author, 3 led by my Ph.D. student, 6 from national/regional projects, and 8 as co-author from international collaborations. I have published as lead author in Science (twice, plus once as senior author), Front. Ecol. Environ., Glob. Ecol. Biogeo., Ecology, Ecol. Appl., etc. I have 466 citations; h-index = 13; i10-index = 16. I have peer-reviewed 35 papers for 17 journals, including Cons. Lett., Ecology, J. Appl. Ecol., For. Ecol. Manage., and others. I have directed 6 master's projects (1 ongoing), and co-supervised one Ph.D. student (defended Jan 2020).

Part B. CV SUMMARY (max. 3500 characters, including spaces)

I am researcher at the University of Granada (UGR), hired as principal investigator of a grant for young researchers from the National Call of the Spanish Ministry of Science ("Retos", modalidad "JIN"). I previously held an *Alexander-von-Humboldt* fellowship at the University of Würzburg (UW), Germany. Previously, I had a *Juan de la Cierva-Formación* fellowship at the U. of Alcalá (UAH) for two years after a one-year postdoc at UGR. In Nov 2015, I defended my Ph.D. at UGR (*cum laude, International award, best-PhD award*) with an *FPU* grant. Through pre- and post-doctoral research stays, I have academic relationships with Imperial College London (UK), U. of Padua (Italy), UW, SLU (Sweden), and UAH. I studied Environmental Science (UGR; highest-grade award; 1-year mobility at U. of Melbourne), a Master's in Ecology, Evolution and Conservation (Imperial College; Distinction) and a Master's in Applied Statistics (Spanish National Distance Education U.; ungraded). I have received research grants by the British Ecological Society and its Spanish counterpart. I am Associate Editor at Journal of Applied Ecology, where I also serve as Guest Editor for a Special Feature. I have taken statistical training in meta-analysis, Bayesian statistics, likelihood methods, and mixed-effects models. I have taught university courses at UGR (Bach. in Biology and Environmental Science), UAH (Master in Ecosystem Restoration and Bach. in Environmental Science), Menéndez Pelayo International U. (Master in Tropical Biodiversity), and the Study Abroad Programme of Arcadia U. (PA, USA, undergrad. course in English). I have communicated my research in ~40 talks, seminars and posters in Spain, Germany, Sweden, France, Belgium, UK, USA, and Mexico. I am a proficient speaker of English, German, and Spanish, and intermediate of French.

I have strong academic ties in the institutions where I have worked but I am also keen on flexible, dynamic collaborations based on short visits, workshops and online communication; most of my recent papers are signed by multinational teams.

My main research lines are plant regeneration, disturbance ecology, and the conservation and restoration of ecosystem services. In my dissertation, I assessed the factors affecting the natural and assisted colonisation of burnt areas by oaks. This included plant-animal interactions and the performance of regeneration through resprouting, germination, and plantation along natural and anthropogenic environmental gradients. I co-invented the seed shelter, a device to protect seeds for reforestation and whose two patents are licensed and have been sold in 4 countries. I am also conducting field and review studies to assess how multiple disturbances affect the provision of ecosystem services and alter plant communities. I have skills in systematic reviewing, meta-analysis, and the analysis of complex ecological experiments. I am participating in five global reviews on disturbance ecology and/or plant regeneration led by scientists from other European and North American countries.

Part C. RELEVANT MERITS

C.1. Publications (including books)

1. Leverkus, A.B., Crawley, M.J. (2020) Temporal variation in effect sizes in a long-term, split-plot field experiment. **Ecology** (in press). Doi: 10.1002/ecy.3009
2. Leverkus, A.B., Gustafsson, L., Lindenmayer, D.B., Castro, J., Rey Benayas, J.M., Ranius, T. & Thorn, S. (2020) Salvage logging effects on regulating ecosystem services and fuel loads. **Front. Ecol. Environ.** (in press).
3. Thorn, S. et al. (author position 8/10) (2020). The living dead –acknowledging life after tree death to stop forest degradation. **Front. Ecol. Environ.** (in press).
4. Thorn, S., Müller, J., Leverkus, A.B. (2019) Preventing future forest diebacks. **Science** 365:1388.
5. Martínez-Baroja et al. (author position 8/10) (2019) Massive and effective acorn dispersal into agroforestry systems by an overlooked vector, the Eurasian magpie. **Ecosphere** 10:e02989.
6. Molinas-González, C.R., Castro, J., González-Megías, A. & Leverkus, A.B. (2019) Effects of post-fire deadwood management on soil macroarthropod communities. **Forests** 10:1046.
7. Rebollo, S., et al. (author position 7/19) (2019) Servicios de la avifauna (high mobile link species) en mosaicos agroforestales: regeneración forestal y regulación de plagas. **Ecosistemas** 28:32–41.
8. Löf, M. et al. (author position 4/8) (2019) Tamm Review: Direct seeding to restore oak (*Quercus* spp.) forests and woodlands. **For. Ecol. Manage.** 448:474–489.
9. Leverkus, A.B., García Murillo, P., Jurado Doña, V., García Pausas, J. (2019). Wildfire: Opportunity for restoration? **Science** 363:134-135.
10. Thorn, S. Leverkus, A.B., Thorn, C.J., Beudert, B. (2019). Education and knowledge determine preference for bark beetle control measures in El Salvador. **J. Environ. Manage** 232:138-144.
11. Castro, J., Leverkus, A.B. (2019). Effect of herbaceous layer interference on the post-fire regeneration of a serotinous pine (*Pinus pinaster* Aiton) across two seedling ages. **Forests** 10:art74.
12. Leverkus, A.B., Thorn, S., Gustafsson, L. & Lindenmayer, D.B. (2018). Salvage logging in the world's forests: Interactions between natural disturbance and logging need recognition. **Glob. Ecol. Biogeogr.** 27(10): 1140-1154.
13. Leverkus, A.B., et al. (21 authors). (2018). Salvage logging effects on regulating and supporting ecosystem services – A systematic map. **Can. J. For. Res.** 48(9): 983-1000.
14. Müller J, Noss R, Thorn S, Bäessler C, Leverkus AB, Lindenmayer D. 2018. Increasing disturbance demands new policies to conserve intact forest. **Cons. Lett.** e12449.
15. Thorn, S. et al. (author position 18/28). 2018. Impacts of salvage logging on biodiversity – a meta-analysis. **J. Appl. Ecol.** 55:279-289.
16. Leverkus, A.B., Jaramillo-López, P.F., Brower, L.P., Lindenmayer, D.B., Williams, E.H. 2017. Mexico's logging threatens butterflies. **Science** 358(6366):1008.
17. Leverkus, A.B., Carrión, M., Molina-Morales, M., Castro, J. 2017. Effectiveness of diesel as a mammal repellent for direct seeding of acorns. **Forests.** 8, 276.
18. Molinas-González, C., Castro, J., Leverkus, A.B. 2017. Deadwood decay in a burnt Mediterranean pine reforestation. **Forests** 8:158.
19. Leverkus, A.B., Castro, J. 2017. An ecosystem services approach to the ecological effects of salvage logging: Valuation of seed dispersal. **Ecol. Appl.** 27(4):1057-1063.
20. Molinas-González, C., Leverkus, A.B., Marañón-Jiménez, S., Castro, J. 2017. Fall rate of burnt pines across an elevational gradient in a Mediterranean mountain. **Eur. J. For. Res.** 136(3):401-409.

21. Castro, J., Molina-Morales, M., Leverkus, A.B., Martínez-Baroja, L., Pérez-Camacho, L., Villar-Salvador, P., Rebollo, S., Rey Benayas, J.M., 2017. Effective nut dispersal by magpies (*Pica pica* L.) in a Mediterranean agroecosystem. **Oecologia** 184(1):183-192.
22. Leverkus, A.B. 2016. Regeneración post-incendio de la encina mediante procesos naturales y asistidos y valoración económica de los servicios ecosistémicos. **Ecosistemas** 25(3):121-127.
23. Leverkus, A.B., Rey Benayas, J.M., Castro, J., 2016. Shifting demographic conflicts across recruitment cohorts in a dynamic post-disturbance landscape. **Ecology** 97:2628-39.
24. Leverkus A.B., Castro J., Delgado-Capel M., Molinas-Gonzales C., Pulgar M, Marañón-Jiménez S., Delgado-Huertas A., Querejeta, J.I. 2015. Restoring for the present or restoring for the future: Enhanced performance of two sympatric oaks (*Quercus ilex* and *Quercus pyrenaica*) above the current forest limit. **Restor. Ecol.** 23(6): 936-946.
25. Castro J., Leverkus A.B., Fuster F. 2015. A new device to foster oak forest restoration via seed sowing. **New For.**46(5-6): 919-929.
26. Leverkus A.B., Rojo M., Castro J. 2015. Habitat complexity and individual acorn protectors enhance the post-fire restoration of oak forests via seed sowing. **Ecol. Eng.** 83: 276-280.
27. Leverkus A.B., Lorite, J., Navarro, F., Pérez Sánchez-Cañete, E., Castro J. 2014. Post-fire salvage logging alters species composition and reduces cover, richness, and diversity in Mediterranean plant communities. **J. of Environ. Manage.** 133: 323-331.
28. Leverkus A.B., Castro J., Puerta-Piñero C., Rey-Benayas J.M. 2013. Suitability of the management of habitat complexity, acorn burial depth, and a chemical repellent for post-fire reforestation of oaks. **Ecol. Eng.** 53: 15-22.
29. Castro J., Puerta-Piñero C., Leverkus A.B., Moreno-Rueda G., Sánchez-Miranda A. 2012. Post-fire salvage logging alters a key plant-animal interaction for forest regeneration. **Ecosphere** 3(10): 90.
30. Leverkus A.B., Puerta-Piñero C., Guzmán J.R., Navarro J., Castro J. 2012. Post-fire salvage logging increases management costs and reduces seedling survival in a Mediterranean mountain ecosystem. **New For.** 43(5-6): 601-613.
31. Puerta Piñero C., Sánchez-Miranda A., Leverkus A., Castro J. 2010. Management of burnt wood after fire affects post-dispersal acorn predation. **For. Ecol. Manage.** 260(3): 345-352.

Other peer-reviewed publications (selection)

1. Castro J. et al. 2015. In: Herrero A., Zavala M.A. (eds). *Los Bosques y la Biodiversidad frente al Cambio Climático: Impactos, Vulnerabilidad y Adaptación en España*. MAGRAMA, ISBN 978-84-491-0038-3. Madrid, pp. 595 – 694.
2. Leverkus A.B. et al. 2015. **Environmental Evidence** 4:16.
3. Leverkus A.B., et al. 2014. **Ecosistemas** 23(2): 48-54.
4. Castro J., Leverkus A.B. 2013. In: Martínez Ruiz C., et al. (Eds.) *Avances en la restauración de sistemas forestales*. SECF-AEET. ISBN: 978-84-937964-6-4. Madrid, pp. 27- 34.
5. Leverkus A.B., et al. 2013. In: Martínez Ruiz C., et al. (Eds.) *Avances en la restauración de sistemas forestales*. SECF-AEET. ISBN: 978-84-937964-6-4. Madrid, pp. 35- 40.

C.2. Research projects and grants

Participation in Research Projects

1. Implications of restoration method under stress gradients for Mediterranean forest restoration (RTI2018-096187-J-100). Spanish Ministry of Science, call “Proyectos de I+D Retos Investigación, modalidad JIN”. **PI: Alejandro B Leverkus**. 2019-2022. **€217.800**.
2. Single and interactive effects of multiple stressors on post-fire regeneration (SR18/1376). British Ecological Society. **PI: Alejandro B Leverkus**. 2019-2020. **€5.683**.
3. Evaluation of new techniques for assisted tree regeneration in dehesas (PP.AVA.AVA201601.19). IFAPA Andalusia. **PI: F Navarro Reyes**. 2016-2018. **€206.327**.
4. Balance of greenhouse gases in national ecosystems of high social and economic impact (CGL2014-52838-C2-1-R). Spanish Ministry of Economy. **PI: Penélope Serrano Ortiz**. 2015-2017. **€163.350**.
5. Enhancement of leaf nutritional status with elevation to enhance elevational migration of species. Spanish Association for Terrestrial Ecology. **PI: Alejandro B Leverkus**. 2016. **€2.000**.

6. Services of bird fauna (highly mobile link species) in agroforestry systems: forest regeneration and plague regulation SERAVI (CGL2014-53308-P). Spanish Ministry of Economy. PI: Salvador Rebollo de la Torre y José María Rey Benayas. 2015-2019. **€205.700.**
7. Development of optimal configurations for a seed protector device (patent 201331441) (PR/14/003). University of Granada. PI: Jorge Castro. 2015. **€1.240.**
8. Field test of a new seed protector (patent application 201331441) (PR/14/D1). University of Granada. PI: Jorge Castro. 2014. **€1.165.**
9. Effect of fire on the diversity of key insects: functional aspects and conservation implications (P12-RNM-2705). Andalusian Regional Government. PI: Jorge Castro. 2014-2018. **€163.000.**
10. Post-fire colonisation of pine afforestations and effects of burnt-wood management: analysis of dispersal and establishment COILEX (CGL2008-01671/BOS). Spanish Ministry of Science. PI: Jorge Castro. 2009-2012. **€145.684.**
11. Restoration and conservation of Madrid's ecosystems: Response to global change REMEDINAL-2 (S2009/AMB-1783). Madrid Regional Government. PI: Adrián Escudero 2010-2013. **€86.630.**
12. Restoration and conservation of Madrid's ecosystems: Response to global change REMEDINAL-3 (S2013/MAE-2719). Madrid Regional Government. PI: Adrián Escudero 2014-2018 **€600.300.**

Personal grants

1. 2019. Spanish Ministry of Economy. Juan de la Cierva-Incorporación fellowship (not enjoyed).
2. 2018. Humboldt Foundation, Germany. Humboldt Research Fellowship.
3. 2018. University of Alcalá. Grant for conference attendance.
4. 2018. University of Alcalá. Grant for postdoctoral short research stay.
5. 2017. Spanish Ministry of Education. José Castillejo grant for postdoctoral short research stay.
6. 2016. Spanish Ministry of Economy. Juan de la Cierva-Formación postdoctoral fellowship.
7. 2016. University of Granada. Short-term postdoctoral fellowship.
8. 2015. University of Granada. Short-term postdoctoral fellowship.
9. 2014. Spanish Ministry of Education. Grant for predoctoral short research stay.
10. 2013. University of Granada. Grant for predoctoral short research stay.
11. 2011. Spanish Ministry of Education. Predoctoral "FPU" fellowship.
12. 2010. Andalusian regional government. TALENTIA grant for Master's education abroad.
13. 2009. Ministry of Education. Research collaboration grant for undergraduate students.
14. 2008. University of Granada. Research initiation grant for undergraduate students.

C.3. Contracts

1. Use of patent P201690010 by Troqueles Granada. 2015-2016. License contract.
2. Use of patents P201690010 and P201331441 by Grupo Sylvestris. 2016-2036. License contract. €2,722.5 earned by University of Granada to date.

C.4. Patents

1. Castro, J., Leverkus, A.B. (Inventors). Seed protector against predators. Patent # P201690010, awarded 24/01/2017, Spain (with PCT). Commercially exploited (Grupo Sylvestris). Owner: UGR.
2. Castro, J., Leverkus, A.B. (Inventors). Seed protector against predators. Patent # P201331441, awarded 23/07/2014, Spain (with PCT). Commercially exploited (Grupo Sylvestris). Owner: UGR.

C.5 Research stays at Imperial College London (UK), Swedish University of Agricultural Sciences-Uppsala (Sweden), University of Padua (Italy), and University of Würzburg (Germany).

C.6 Member of Spanish Association for Terrestrial Ecology (AEET), Spanish Forestry Society, British Ecological Society, Iberian Ecological Society, and Ecological Society of America

C.7 Reviewer for grant proposals, British Ecological Society and AEET

C.8 Peer reviews for 35 articles 17 SCI-indexed journals

C.9 Associate Editor and Guest Editor for Special Feature, Journal of Applied Ecology.

C.10 Mentoring of 6 Master's projects (2 ongoing) and co-direction of one ongoing PhD project. My Ph.D. student (C. Molinas-González) has already produced two papers (see list above).

C.11 Awards: Honorific Professor (UAH, 2019); "Profesor Contratado Doctor" (ANECA, 2016); "Investigador Nacional" (Mexican Science Council CONACYT, 2016 & 2019), best-Phd award (UGR)