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Newsletter

Project official launch and kick-off meeting held in Murcia

The kick-off meeting of the DARKWIN Project took place at CEBAS CSIC facilities, in Murcia (Spain) on the 1st of march 2023. This first meeting was the starting point of this project with a foreseen duration of 4 years. The meeting gathered Consortium partners: Max Planck Institute (MPIMP) , NOVAGRIC, UNIGENIA, DORIANE and the following centers belonging to CSIC (Spanish National Agency for Scientific Research) CBGP-CSIC , CAR-CSIC, EBD-CSIC and CEBAS-CSIC. The Coordinator Prof. Francisco Pérez Alfocea remarked the scientific and technical objectives and KPIs that will be used for project results monitoring, and that the project is following a market oriented strategy. The work package (WP) leaders presented the general roadmap of the project through the brief description of different WPs, starting about the different tasks, current status, critical risks and deliverables , as well as the steps and objectives to be achieved during the first year of the project.

For further information, please visit:

<https://darkwin.eu/>



DARKWIN partners during the
kick-off meeting held in Murcia, Spain

How do more than 100 different species survive in a single square meter?

by Ignasi Bertomeus

In the middle of the Doñana Natural Park, in Andalusia, there is a meadow with dozens of species of plants that compete to attract the many pollinating insects that flutter around the area: bees, flies, dipterans and even beetles of various kinds. These plants also silently suffer from the bites of other invertebrates that seek food, such as snails, caterpillars or bugs. How all these species survive in this space is one of the key questions of ecology. Ecological theory postulates that the persistence of species in ecological communities is determined by interactions. In other words, the complex balance between who eats whom, who helps whom, and who competes with whom determines which ones can and cannot coexist.

At the Caracoles farm, researchers from the Doñana Biological Station of the CSIC and the University of Cádiz have measured all these relationships over the last few years, observing a network of complex interactions between hundreds of species. What are these stable structures? The first is that species have to compete with themselves more than with others. That is to say, when they grow in abundance and there are many individuals of a species, they hinder themselves. The second is that resources are distributed between species, instead of overlapping in their use. This is similar to what happens with companies, which specialize in selling a specific product and try to differentiate themselves from what others do. This result is not intuitive. The first ecologists who began dissecting bird stomachs in the mid-19th century observed that some years the birds ate a lot of one thing and other years something else, so they hypothesized that the greater the diversity of available food, the more stable the bird communities would be, which could vary their diet depending on availability. It took almost 100 years for an ecologist, Robert May, to show that this was not the case, and that complexity is not stable: the more pieces a system has, the more difficult it is for all of them to be connected correctly, and a small disturbance can disassemble the entire community.



Bombus lapidarius on *Melilotus officinalis* (Tallinn) / Ivar Leidus

To continue reading the full article go [here](#) (ES)



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Congresses & Events

Participation of DARkWIN team in Congresses:



XVI Congress Fitohormonas METABOLISMO Y MODO DE ACCIÓN (<https://www.fitohormonas2023.com/>) (April 2023, Segovia, Spain). Basic data about hormones and plant x pollinator x environment interactions will be presented.



IX Congreso Ibérico y XVII Congreso Nacional de Ciencias Hortícolas 2023 (<https://sech2023.com/>) (June 2023, Mérida, Spain). The innovative project concept and some preliminary results will be communicated to a national audience, mostly focusing on applied aspects of horticulture.

Future Events to be attended in next semester



4th Asian Horticultural Congress (AHC2023) will be held in Tokyo in August 2023 (<https://ahc2023.org>). The innovative project concept and some preliminary results will be communicated to an international audience in the Pacific area, mostly focusing on applied aspects of horticulture.



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Relevant papers

Cristina Martínez-Andújar, Rim Ben Youssef, Ángela S. Prudencio, Maialen Ormazabal, José Ángel Martín-Rodríguez, Alfonso Albacete, Purificación Martínez-Melgarejo & Francisco Pérez-Alfocea. Bumblebees sense rootstock-mediated nutrition and fertilization regime in tomato

<https://link.springer.com/article/10.1007/s11104-023-05868-0>

Wu, Y., Liu, G., Sletvold, N., Duan, X., Tong, Z. and Li, Q. (2023), Soil water and nutrient availability interactively modify pollinator-mediated directional and correlational selection on floral display. *New Phytol*, 237: 672-683. <https://doi.org/10.1111/nph.18537>

Filipiak, Zuzanna M., Ollerton, Jeff, and Filipiak, Michał. 2023. “Uncovering the Significance of the Ratio of Food K:Na in Bee Ecology and Evolution.” *Ecology* e4110. <https://doi.org/10.1002/ecy.4110>

de Sousa Raquel T., Darnell Robyn and Wright Geraldine A. 2022. Behavioural regulation of mineral salt intake in honeybees: a self-selection approach *Phil. Trans. R. Soc.* B3772021016920210169.

<http://doi.org/10.1098/rstb.2021.0169>

Hemberger, J. A., Rosenberger, N. M., & Williams, N. M. (2023). Experimental heatwaves disrupt bumblebee foraging through direct heat effects and reduced nectar production. *Functional Ecology*, 37, 591–601. <https://doi.org/10.1111/1365-2435.14241>

Chirivì, D.; Betti, C. Molecular Links between Flowering and Abiotic Stress Response: A Focus on Poaceae. *Plants* 2023, 12, 331. <https://doi.org/10.3390/plants12020331>

DARKWIN is in social media



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