

RESEARCH LINE 11B	
COMPANY	Fundación Tatiana Pérez de Guzmán el Bueno
PhD THESIS SUPERVISOR (UPM)	<p>Prof. Dr. Carlos Gregorio Hernández Díaz-Ambrona <i>Agricultural, Food and Biosystems Engineering School Department of Agricultural Production (PhD in Agro-environmental Technology for Sustainable Agriculture)</i></p>
PhD THESIS CO-SUPERVISOR (COMPANY)	<p>Co-Supervisor: Dr. Álvaro Matud Juristo <i>Director of Institutional and Academic Relations Fundación Tatiana Pérez de Guzmán el Bueno</i> Tutor: Mr. Jesús Zamora Rodríguez <i>Director of Projects and Investments Fundación Tatiana Pérez de Guzmán el Bueno</i></p>
DESCRIPTION OF THE PhD THESIS PROJECT	<p>The natural space bordering the urban area: Observation base to know the functioning of natural ecosystems.</p> <p>This proposal will study Four pillars of sustainability: Environmental, Social, Economic, and Governance applied to the functioning of natural systems in border, semi-natural, and extensive agricultural areas (agro silvo pastoral dehesa) so as to fill an important scientific gap. The issue is relevant worldwide, given the complexity of managing these spaces, as can be seen in the unfortunate events of large forest fires that have affected catastrophically from California to Australia, not only due to the cost of human lives, but also due to the loss of their natural values. Also due to the role that these buffer spaces present for the deposition of tropospheric ozone and other elements such as nitrogen. It is necessary to provide scientific knowledge for a better integrated and sustainable management of these frontier environments.</p> <p>To know the operation of High Natural Value spaces in the surroundings of large city and their metropolitan area. It proposes a new reflection of the dialogue between country and city. The idea of a green corridor around the city of Madrid (the so-called “Bosque Metropolitano”, metropolitan Forest) and its connections to the surrounding forest, requires studying how this space can function. The metropolitan forest raises the connectivity of the green infrastructure of the city and its surroundings, so it also transcends the peri-urban space, the European Union catalogs the spaces of High Natural Value in application of the Habitat Directive 92/43/EEC, as dehesas, and most of the peri-urban environment of the city of Madrid some of its elements are declared a World Heritage Site. Buffer zones in Mediterranean environments are very fragile. Especially the Mediterranean vegetation and the pastures in particular are especially sensitive to changes. This comparison will allow a better analysis of extensive grazing systems and a better understanding of their implications on the conservation of terrestrial ecosystems (SDG 15) and on climate action (SDG 13). Mitigation and adaptation to climate change (SDG13): Agroforestry systems, which integrate practices that combine a woody component (tree or bush) with an agricultural component, are characterized by greater carbon sequestration in the woody component and in the soil compared to exclusively agricultural systems. For the study of the possibility of adaptation and mitigation, the use and improvement of the Dehesa Model © software created by AgSystems. The management of space on the edge of urban areas has to take into account the establishment of a dialogue between urban, rural and environmental space. This trinomial lays the foundations for the development of this thesis project. Inappropriate management of animals, domestic or wild, can have disastrous consequences.</p>

TRAINING ACTIVITIES	<p>The cross curricular courses offered by the International Doctoral School (EID).</p> <p>Specific training activities to the development of the doctoral thesis: developing and writing a thesis, participation in congress or conferences, published papers, participation in research project.</p> <p>Training in system dynamics modelling.</p> <p>Ecosystem-based adaptation.</p> <p>Training in on innovation for more sustainable and resilient cities.</p>
SECONDMENT(S)	<p>Tentative secondments (with a minimum of 3 months)</p> <p>1.- IABS (Instituto Brasileiro de Desenvolvimento e Sustentabilidade) in Brasil to study the Project Cidade Inclusiva (Maceio, Alagoas).</p> <p>2.- The University of Melbourne (Melbourne, Australia). The Victorian Eco-Innovation Lab (VEIL) is a research-design-action group focused on innovation for more sustainable and resilient future cities. It is an interdisciplinary group whose work is engaged with and embedded in industry, government and society.</p> <p>3.- Zamorano University (Tegucigalpa, Honduras), Uyuca Biological Reserve (RBU). The Uyuca Biological Reserve provides ecosystem services of great value, especially potable water for Zamorano community. The University manages nearly 3000 ha of forest in which students take part by means of the learning by doing training program</p>
REQUIREMENTS FOR CANDIDATES	<p>Degree (MSc, Engineers, ...): Master in Strategies and Technologies for Development , Specific Training Course “SDGs and cities”, MSc in Agro-Environmental Technology for Sustainable Agriculture and similar studies.</p> <p>Skills:</p> <ul style="list-style-type: none"> - In fields related to the environment or sustainable agriculture, agronomy, agricultural engineering, forestry, environmental sciences, ecology and similar career - Multidisciplinary and transversal skills - Capacity for comprehension and correct spoken and written communication, including the comprehension and use of specialized language (English and recommended Spanish) - Capacity to work as part of a group in multidisciplinary, multicultural and international teams. - Capacity to formulate creative solutions to problems involving consideration of social or ethical responsibility. - Adaptability, initiative, capacity for independent learning, the ability to manage frustration, and emotional intelligence. - Capacity to carry out R&D+i projects, designing and conducting experiments, analysing results and drawing conclusions. - Communication skills. <p>Background:</p> <ul style="list-style-type: none"> - Graduates with science, technology, engineering, art and applied mathematics backgrounds. - Understanding of and ability to apply environmental assessment and management methodologies in agronomy and forestry