

# Webinar

Informação sobre oportunidades para pós-doutoramento com financiamento da Comissão Europeia



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TROPIBIO

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## Como começar a preparar uma proposta Marie Curie (MSCA-PF)

Juliana Stropp

19/07/2021

# 1. O que é a bolsa MSCA-PF

- Financiamento para pós-doutoramento em instituições da Europa
- Financiamento da Comissão Europeia
- Chamada aberta: 22 Junho 2021
- Prazo para submissão: 12 Outubro 2021

<https://ec.europa.eu/research/mariecurieactions/calls/msca-postdoctoral-fellowships-2021>



About MSCA ▾ Actions ▾ **Funding** Jobs Resources ▾ What's new ▾

## MSCA Postdoctoral Fellowships 2021

**Reference** [HORIZON-MSCA-2021-PF-01](#)  
**Deadline** **12 Oct 2021**

MSCA Postdoctoral Fellowships enhance the creative and innovative potential of researchers holding a PhD and who wish to acquire new skills through advanced training, international, interdisciplinary and inter-sectoral mobility. MSCA Postdoctoral Fellowships will be open to excellent researchers of any nationality.

The scheme also encourages researchers to work on research and innovation projects in the non-academic sector and is open to researchers wishing to reintegrate in Europe, to those who are displaced by conflict, as well as to researchers with high potential who are seeking to restart their careers in research.

Follow this link to learn more details about [MSCA Postdoctoral Fellowships](#) .

Fellowships will be provided to excellent researchers. undertaking international mobility either to or

## 2. Por onde começar?

- Idéias mais ou menos definidas, contato com orientador e instituição (metade de julho)
- Primeira versão (COMPLETA!) (final de agosto)
- Correções e revisões (setembro & outubro)



- Submissão (12 Oct. 17: 00 h – horário de Bruxelas)

## 2. Por onde começar?

- Veja outras propostas
- Converse com pessoas que já tiveram propostas aprovadas
- Consulte banco de dados CORDIS

CORDIS: Banco de dados de propostas aprovadas

<https://cordis.europa.eu/>

Aplicar filtro: MSCA-IF

The screenshot displays the CORDIS search interface. On the left, a blue sidebar contains a list of filters. The 'Funding scheme' filter is highlighted with an orange box and set to 'MSCA-IF'. Other filters include Project acronym, Project ID, Call ID, Start date, End date, EU contribution, Total cost, Organisation country, Organisation name, Contact person, and Target audience. The main area shows three search results, each with a 'HORIZON 2020' logo and a 'PROJECT' label. The first result is 'PROS-VARIANT PIK3CA-Related Overgrowth Spectrum: molecular mechanisms and preclinical modelling of PIK3CA VARIANTS' (ID: 101026227), coordinated in Spain, with a date range from 1 September 2022 to 31 August 2024. The second result is 'PHYCOCYP PHYtoplankton responses to organic CONTaminants: the role of CYtochrome P450' (ID: 101030396), coordinated in France, with a date range from 1 September 2021 to 31 August 2024. The third result is 'PerovSiC Synergistic Resistive Switching of Perovskite and Silicon Carbide materials for Advanced ReRAM micro Devices' (ID: 746648), with a date range from 1 July 2017 to 20 October 2019. Each result includes a description, programme information (H2020-EU.1.3.2), last update date, and an 'Add to my booklet' link.

## 2. Por onde começar?

- Por que este projeto?
- Por que você?
- Por que agora?



# 3. Proposta

- Excellence
- Impact
- Implementation

*0 – The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.*

*1 – **Poor.** The criterion is inadequately addressed, or there are serious inherent weaknesses.*

*2 – **Fair.** The proposal broadly addresses the criterion, but there are significant weaknesses.*

*3 – **Good.** The proposal addresses the criterion well, but a number of shortcomings are present.*

*4 – **Very good.** The proposal addresses the criterion very well, but a small number of shortcomings are present.*

*5 – **Excellent.** The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.*

**Minimum 4.7**

# 3. Proposta

- Excellence

1. Research & Innovation
2. Methods (interdisciplinary approach, gender issues, open science, engagement with society)
3. Two-way knowledge transfer

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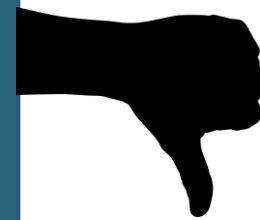
**Minimum 4.7**

# 3. Proposta

- Excellence

  - 1. Research & Innovation

- Questões com impacto científico amplo
- Testes de hipótese relevante para a disciplina
- Mudança de paradigma
- Pesquisa interdisciplinar
- Scale-up
- Uso de novas tecnologias



- Estudo de caso
- Réplica de estudo já realizado
- Novo método para uma pergunta antiga
- Estudos pontuais (teórico ou aplicado)

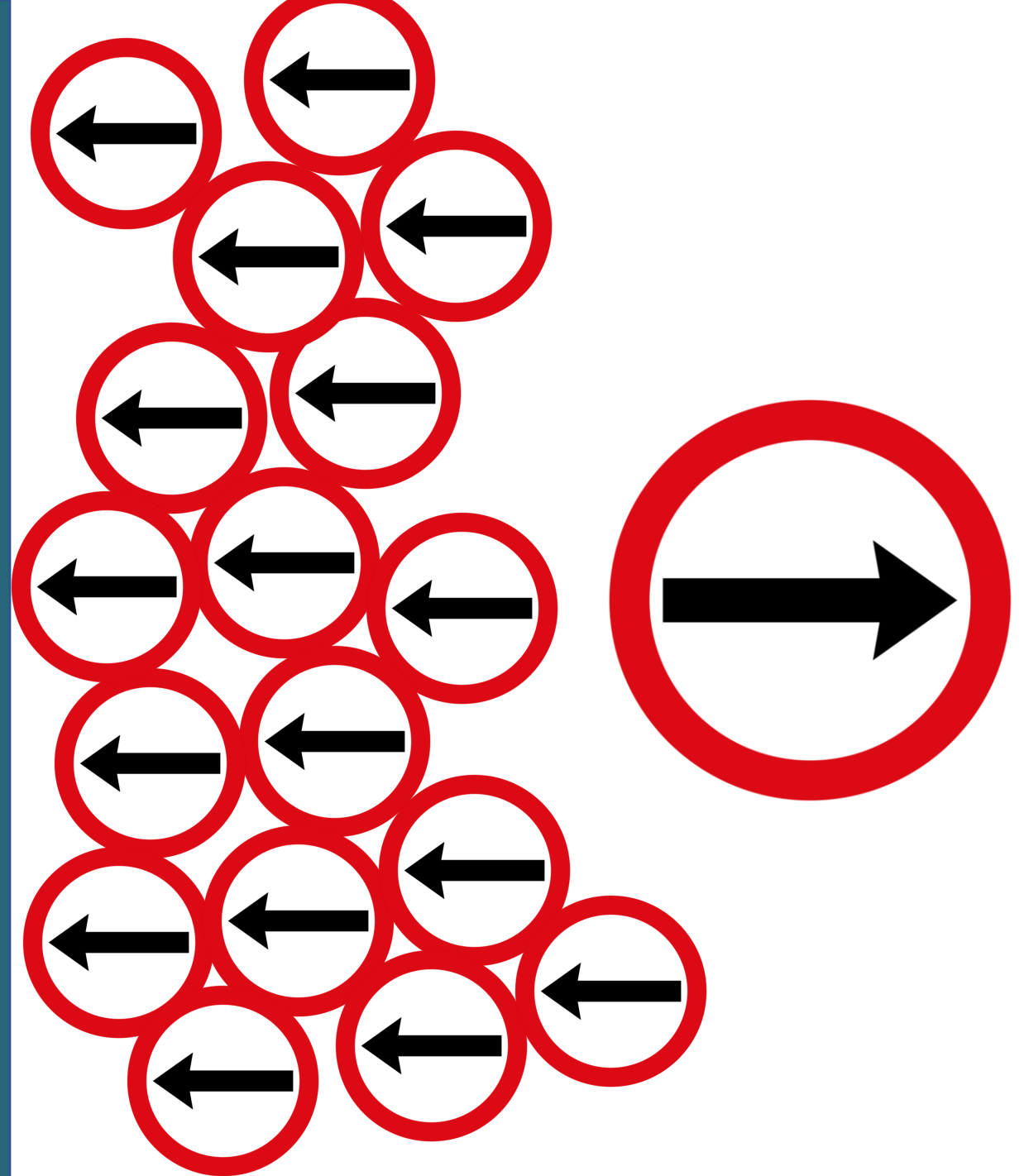


## 2. Por onde começar?

- Excellence

### 1. Research & Innovation

- Explicar/demonstrar o aspecto inovador
- Como? Incluir referencias a artigos recentes (de alto impacto) que mostram o caracter inovador to projeto/tema
- Colocar problemas locais em context global
- Exemplo: Climate change & sustainable agriculture in Angola → potential solution for tropical agriculture
- “Local research in a global context”



## 2. Por onde começar?

- Exemplo

<https://cordis.europa.eu/project/id/892383>

### Project Information

#### RESCATA

Grant agreement ID: 892383

#### Start date

1 October 2020

#### End date

16 March 2023

#### Funded under

H2020-EU.1.3.2.

#### Overall budget

€ 212 933,76

#### EU contribution

€ 212 933,76

#### Coordinated by

UNIVERSITY OF LEEDS

 United Kingdom



### Project description



#### Integrating Andean and Amazonian vegetation-monitoring schemes

In terms of carbon storage, biodiversity and climate regulation, the Andes and the Amazon are among the most important ecosystems on Earth. Like other tropical forests, they too are affected by rising temperatures and droughts threatening plant species with extinction. To date, the Andes and the Amazon have been studied separately in terms of climate change, despite being adjacent and having similar ecosystems. The EU-funded RESCATA project will integrate the world's most advanced networks of Andean and Amazonian vegetation-monitoring schemes and carry out innovative species-level analyses. RESCATA will identify the reasons behind plant species' survival or extinction under climate change in the two regions, as well as consider current and future macroecological effects.

## 2. Por onde começar?

- Exemplo

<https://cordis.europa.eu/project/id/843234>

### Project Information

#### TAXON-TIME

Grant agreement ID: 843234



#### Start date

1 December 2019

#### End date

30 November 2021

#### Funded under

H2020-EU.1.3.2.

#### Overall budget

€ 172 932,48

#### EU contribution

€ 172 932,48



#### Coordinated by

AGENCIA ESTATAL CONSEJO SUPERIOR DE  
INVESTIGACIONES CIENTIFICAS

Spain

### Project description



### Bridging the gap between taxonomy and macroecology

Key aspects of ecology, from understanding biodiversity to identifying conservation targets, depend on how organisms are classified. For ecologists, the importance of taxonomy is undisputed. Yet most sub-disciplines of ecology treat the taxonomic classification of organisms as static, while in reality it is dynamic and subject to periodic change. TAXON-TIME aims to bridge the gap between taxonomy and macroecology. The project investigates 250 years of botanical explorations in African and Amazonian rainforests and analyses the impacts of taxonomic reclassifications on macroecological patterns of plant diversity. This EU-funded project relies on data-intensive research methods to integrate massive volumes of digital data of historical species discoveries and reclassifications.


# 3. Proposta

## ▪ Excellence: Research & Innovation

### Em poucas frases:

- O que é bem estabelecido na literatura
- Lacuna de conhecimento
- Como o projeto vai preencher esta lacuna
- Intrigar a curiosidade da comunidade científica

START PAGE COUNT – MAX 10 PAGES

**1 EXCELLENCE** 

**1.1 QUALITY AND CREDIBILITY OF THE RESEARCH/INNOVATION PROJECT; LEVEL OF NOVELTY, APPROPRIATE CONSIDERATION OF INTER/MULTIDISCIPLINARY AND GENDER ASPECTS**

Without taxonomy, ecological research is unthinkable. Key aspects of ecology, from understanding biodiversity to identifying conservation targets, depend on how organisms are classified. For ecologists, the importance of taxonomy is therefore undisputed. Yet most sub-disciplines of ecology, including macroecology, treat the taxonomic classification of organisms as static, while in reality it is dynamic and subject to periodic change (Fig. 1). This discrepancy only stems from the divergent focus of both disciplines: whereas taxonomy treats species as hypotheses that can be tested with scientific evidence, macroecology requires species classifications as a solid reference to capture biodiversity patterns across spatial scales<sup>1</sup>. Bridging the divergence by a framework, taking the dynamic nature of taxonomic classification with macroecology has not been attempted in a systematic manner but would allow uncovering the impact of taxonomic change on biodiversity patterns<sup>2</sup>. Such a framework, however, is still missing because the necessary methods of data-intensive research became available only recently<sup>3</sup>. The scientific challenge of incorporating taxonomic change into macroecology is the focus of TAXON-TIME.

The project presents a challenge: a long-standing research problem in macroecology, the observation that for decades estimates of global species richness still do not converge<sup>4,5</sup>. This problem arises in part because estimates are heavily dependent on the counts of individual species – a parameter that by itself is uncertain and bound to change<sup>6,7</sup> following the discovery, description, and classification of species<sup>8,9</sup>. Current estimates from species characteristics<sup>10</sup> to research practices<sup>11,12</sup> and funding<sup>13</sup> determine both the number of discoveries and the likelihood of taxonomic reclassifications. Plants with conspicuous flowers, for instance, are more likely to attract the attention of taxonomists than plants with unremarkable features<sup>14</sup>. Moreover, thoroughly described species have a lower chance of being reclassified than showing higher taxonomic stability<sup>15</sup>. As a consequence, the wealth of taxonomic knowledge – the number of species described, the quality of species descriptions and the frequency of reclassifications – varies consistently across time and regions<sup>16</sup>.

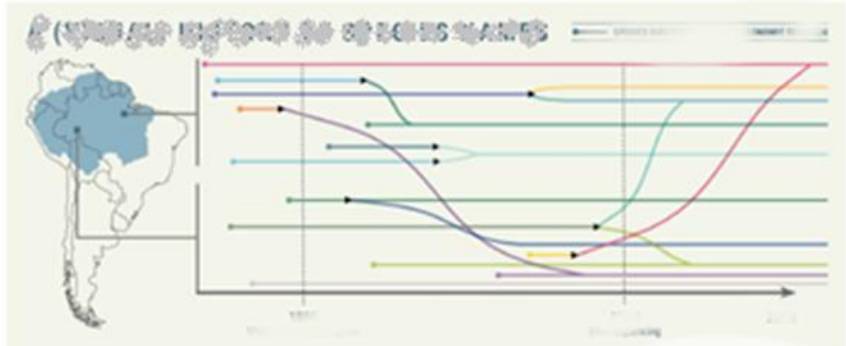


Figure 1. Schematic timeline covering 250 years of discoveries and reclassifications of species recorded at two sites in Amazonia; line colours represent individual species, dashed lines mark the time point of biodiversity sampling; the number of species intersecting these lines changes over time.

Of the two thousand vascular plant species newly described each year in the last decade around the world, only half come from newly collected specimens; the other half come from the reclassification of already existing herbarium vouchers<sup>17</sup> following improved molecular and morphometric techniques, and the use of synonyms, and outside access to biological information through the digitalization of herbarium specimens<sup>18</sup> and their reuse<sup>19</sup>. Yet, taxonomists often vary greatly across countries. While Brazil, China and Australia describe 250 new vascular plant species yearly, very species-rich countries, such as Gabon or the Democratic Republic of Congo, describe much less species<sup>20</sup>.

<sup>1</sup>Tessardo et al. (2017) *Ecol Evol*, 7:8863. <sup>2</sup>Wey et al. (2017) *Trends Ecol Evol*, 18: 587-603. <sup>3</sup>Mortal et al. (2015) *Ann Rev Ecol Syst*, 46:523. <sup>4</sup>Calcey et al. (2014) *Trends Ecol Evol*, 29:187-188. <sup>5</sup>Frazer & Steiner (2017) 1-12. <sup>6</sup>De Siqueira et al. (2013) *Science*, 342:1243-1246. <sup>7</sup>Cardoso (2017) *PNAS*, 114: 0895-10706. <sup>8</sup>Lomolino (2004) in *Frontiers of Biogeography: New Directions in the Geography of Nature*, ed. Lomolino & Heaney, pp. 293. <sup>9</sup>Diniz-Filho et al. (2005) *Glob Ecol Biogeogr*, 14: 469-477. <sup>10</sup>Troudet et al. (2017) *Nature Sci Rep*, 7:1. <sup>11</sup>Gangster & Luksemburg (2015) *Syst Biol*, 64:144. <sup>12</sup>Altrands et al. (2011) *Diversity Distrib*, 17: 191-200. <sup>13</sup>Troudet et al. (2017) *Nature Sci Rep*, 7:1. <sup>14</sup>Gangster & Luksemburg (2015) *Syst Biol*, 64:144. <sup>15</sup>KEW Royal Botanic Gardens (2016) *State of the World's Plants 2016*. <sup>16</sup>Fine (2015) *Ann Rev Ecology, Syst Syst* 46:268.

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# 3. Proposta

- Excellence: Research & Innovation

- Contextualização e detalhamento do problema em linguagem acessível
- Ilustração simples e informativa

START PAGE COUNT – MAX 10 PAGES

**1 EXCELLENCE**

TAXON-TIME

**1.1 QUALITY AND CREDIBILITY OF THE RESEARCH/INNOVATION PROJECT; LEVEL OF NOVELTY, APPROPRIATE CONSIDERATION OF INTER/MULTIDISCIPLINARY AND GENDER ASPECTS**

Without taxonomy, ecological research is unthinkable. Key aspects of ecology, from understanding biodiversity to identifying conservation targets, depend on how organisms are classified. For ecologists, the importance of taxonomy is therefore undisputed. Yet most sub-disciplines of ecology, including macroecology, treat the taxonomic classification of organisms as static, while in reality it is dynamic and subject to periodic change<sup>1,2</sup> (Fig. 1). This discrepancy may obscure the divergent focus of both disciplines: whereas taxonomy treats species as hypotheses that can be tested with scientific evidence, macroecology requires species classifications as a solid reference to capture biodiversity patterns across spatial scales<sup>3</sup>. Bridging the divergence by a framework, linking the dynamic nature of taxonomic classification with macroecology has not been attempted in a systematic manner but would allow uncovering the impact of taxonomic change on biodiversity patterns<sup>4</sup>. Such framework, however, is still missing because the necessary methods of data-intensive research became available only recently<sup>5</sup>. The scientific challenge of incorporating taxonomic change into macroecology is the focus of TAXON-TIME.

This project directly addresses a long-standing research problem in macroecology: the discrepancy between the estimates of global species richness still do not converge<sup>6,7</sup>. This problem arises in part because estimates are heavily dependent on the counts of individual species – a parameter that by itself is uncertain and bound to change<sup>8,9</sup> following the discovery, description, and classification of species<sup>10</sup>. Recent advances from species characteristics<sup>11</sup> to research practices<sup>12,13</sup> and funding<sup>14</sup> determine both the number of discoveries and the likelihood of taxonomic reclassifications. Plants with conspicuous flowers, for instance, are more likely to attract the attention of taxonomists than plants with unremarkable features<sup>15</sup>. Moreover, thoroughly described species have a lower chance of being reclassified than showing higher taxonomic stability<sup>16</sup>. As a consequence, the wealth of taxonomic knowledge – the number of species described, the quality of species descriptions and the frequency of reclassifications – varies consistently across time and regions<sup>17</sup>.

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# 3. Proposta

- Excellence: Research & Innovation

- Destaque como o projeto está organizado em “Work Packages”
- Uma pergunta geral
- Perguntas organizadas por WP

The resulting variation of taxonomic knowledge across taxa and regions influences our view of biodiversity. Part of the problem is addressed by macroecological models that account for unequal sampling effort when extrapolating species richness over large under-sampled areas<sup>127,130</sup>. Yet the impact of taxonomic change on macroecological predictions remains poorly understood. Addressing this problem starts by identifying drivers of taxonomic change and uncovering its temporal and spatial dynamics<sup>131</sup>. Efforts in this direction are still scarce<sup>132</sup>, except for a few case studies and regional<sup>133</sup>.

The emergence of global biodiversity databases and new methods of data-intensive research has recently unlocked massive volumes of historical data documenting the temporal and spatial dynamics of taxonomic discovery and reclassifications<sup>134,135</sup>. While these new data can help macroecologists in developing a probabilistic understanding of biodiversity, they can also help taxonomists to gain insights of the underlying processes of taxonomic discoveries, which is key for setting priorities for future research<sup>136</sup>.

**OBJECTIVES & OVERVIEW OF THE PROJECT**

TAXON-TIME aims to scrutinize taxonomic effort across the 250 years of taxonomic history of African and Amazonian tree flora and analyse its impacts on macroecological patterns of species abundance and richness (Box 1). The two biomes represent the largest rainforests in the world and harbour extraordinary tree diversity. Taxonomic efforts in African and Amazonian rainforests still remain patchy<sup>137,138</sup>, many tree species are still unknown and many others would disappear before being accurately described. Understanding past taxonomic efforts (WP1) can help to establish priorities for future taxonomic research (WP2), while providing empirical evidence of how change in taxonomic classification impacts our understanding of biodiversity (WPs 3, WP4).

**Box 1. Research questions addressed by TAXON-TIME**

<b>OVERARCHING QUESTION: What drives shifts in taxonomic knowledge over time and how do these shifts affect our understanding of biodiversity?</b>	
<b>WP1</b>	<b>DATABASE OF TAXONOMIC DISCOVERIES AND RECLASSIFICATIONS OF AFRICAN AND AMAZONIAN TREES</b> Completion of a central database tracing the history of taxonomic discoveries and reclassifications, complemented with ancillary information on species descriptions
<b>WP2</b>	<b>TRACING THE HISTORY OF TAXONOMIC DISCOVERIES AND RECLASSIFICATIONS</b> Q1) Which attributes of species descriptions lead to taxonomic reclassifications? Q2) How do taxonomic discoveries and reclassifications change over time in African and Amazonian rainforests over time? Q3) Does taxonomic research embrace taxa most threatened by forest loss?
<b>WP3</b>	<b>INCORPORATING TAXONOMIC RECLASSIFICATIONS INTO MACROECOLOGICAL MODELS</b> Q4) How does taxonomic reclassification affect macroecological patterns of tree species abundance across African and Amazonian rainforests?
<b>WP4</b>	<b>INCORPORATING TAXONOMIC RECLASSIFICATIONS INTO BIODIVERSITY ESTIMATES</b> Q5) How will future taxonomic discoveries and taxonomic reclassifications shape macroecological patterns of species richness across African and Amazonian rainforests?

**RESEARCH MOTIVATION AND APPROACH** – Using the tree floras of African and Amazonian rainforests as a model group, TAXON-TIME will conduct original research to link taxonomy and macroecology. This research will be applied to integrate data documenting 250 years of taxonomic discoveries, taxonomic reclassifications and botanical sampling of African and Amazonian rainforests.

**STUDY SYSTEM AND MODEL GROUP** – The tree floras of African and Amazonian rainforests, hereafter African and Amazonian trees, are the ideal model group for TAXON-TIME for three reasons. First, owing to their iconic status and contribution to global ecosystem services, African and Amazonian trees have attracted the attention of scientists<sup>139,140</sup>. Second, vouchers from African and Amazonian rainforests, from African and European herbaria<sup>141</sup>, as those of Amazonian trees are mainly stored in the Americas<sup>142</sup>. This geographical proximity of herbaria and archives of taxonomic practices facilitates comparisons between the two continents. Finally, outstanding data resources (specimen collections, botanical monographs, plant inventories, accessible and well-curated species checklists) are available for African and Amazonian trees. No larger group of tropical plants is served better with such data.

**WP1: DATABASE OF TAXONOMIC DISCOVERIES AND RECLASSIFICATIONS OF AFRICAN AND AMAZONIAN TREES**  
**LIST OF AMAZONIAN AND AFRICAN TREES** – To compile the central database, TAXON-TIME will use recently collated checklists for African<sup>143</sup> and Amazonian<sup>144</sup> trees. The checklist for African trees is compiled from the FUNBIO database<sup>145</sup> that contains 3000 names of tree species. The two checklists for Amazonian trees together comprise 1000 tree species. Taxonomic divergences in the names contained in the checklists for Amazonian trees, TAXON-TIME will take a conservative and heuristic approach:

<sup>127</sup>Rocchini et al. (2017) *Sci Tot Environ*, 584–585:282. <sup>128</sup>Edie et al. (2017) *PNAS*, 114:3666. <sup>129</sup>de Sauge et al. (2013) *Science*, 342:1243092. <sup>130</sup>Franz et al. (2017) *Cladistics*, doi:10.1111/clad.12201. <sup>131</sup>Nickolson et al. (2012) *Zootaxa*, 3477:1. <sup>132</sup>Vences et al. (2013) *Zootaxa*, 3636:201-244. <sup>133</sup>International Plant Name Index. <http://www.ipni.org>. <sup>134</sup>Biodiversity Heritage Library. <https://www.biodiversitylibrary.org/>. <sup>135</sup>Global Biodiversity Information Facility (GBIF) <https://www.gbif.org/>. <sup>136</sup>Gossef (2017). *BMC Bio*, 15:15. <sup>137</sup>de Steege et al. (2016) *Nat Sci Rep*, 6:29549. <sup>138</sup>Dauby et al. (2016) *Phytkeys*, 74:1-18. <sup>139</sup><http://asdn.myspecies.info/>. <sup>140</sup><http://www.forestplots.net>. <sup>141</sup>Strapp et al. (2016) *Glob Ecol Biogeogr*, 25: 1085-1096.

# 3. Proposta

- Excellence

1. Research & Innovation
2. **Methods (interdisciplinary approach, gender issues, open science, engagement with society)**
3. Two-way knowledge transfer

- Destacar aspecto inovador
- Destacar por que este é o momento certo para aplicar estes métodos
- Enfatizar abordagem intedisciplinar

# 3. Proposta

- Exemplos: Methods

<https://cordis.europa.eu/project/id/892383>

extinction under climate change conditions in the Amazon-Andes region and to reveal ongoing and future macroecological changes in these forests. We will test the role of initial species abundance, distribution range, functional traits, and phylogeny on species success or failure. In addition, we will pioneer the standardization of Andean and Amazonian data in order to increase usage, collaboration and accuracy. Fadrique will work alongside world-leading researchers Prof. Phillips and Prof. Cayuela in order to gain macroecological knowledge, alongside new skills in big-data analysis and individual-based modelling as well as multidisciplinary connections to establish herself as a leading climate-change scientist in Europe. The results of this project will be of high interest far beyond the scientific community including government entities, policy makers, conservation agencies and the general public and I will engage them via different activities such as publications, policy reports, webinars and workshops

**“Pioneer the standardization of data”**



# 3. Proposta

- Exemplos: Methods

<https://cordis.europa.eu/project/id/843234>

project will scrutinize 250 years of botanical explorations in African and Amazonian rainforests and analyze the impacts of taxonomic reclassifications on the macroecological patterns of tree species abundance and richness. To this end, TAXON-TIME will apply cutting-edge methods of data-intensive research and integrate massive volumes of digital data of historical taxonomic discoveries and reclassifications that became available only recently. A probabilistic approach to data analysis will ensure the resulting biodiversity patterns account for the likelihood of taxonomic reclassifications across space and time. TAXON-TIME results can lead to a paradigm shift in macroecological research towards the adoption of a probabilistic, rather than deterministic, view of taxonomic reclassifications. The project is led by an Experienced Researcher (ER) with outstanding analytical and technical skills and relevant research experience on three continents. TAXON-TIME brings together an interdisciplinary team of leading scientists with complementary research skills in tropical ecology, macroecology and data-intensive research. Upon completion, TAXON-TIME will contribute to a paradigm shift in macroecology and provided the ER

“... integrate massive volume of data”

# 3. Proposta

## Excellence: Methods

- Para cada WP: descrição clara e simples dos métodos
- Para cada WP: citar seus artigos anteriores e artigos do orientador que sejam relacionados ao tema.
- Indicar credibilidade científica e de execução

species names will be considered valid if they appear on both lists. All species names will be checked against nomenclatural databases<sup>14,15</sup> and if determined valid, included in the database. This approach will lead to one workable checklist for each African and Amazonian tree (milestone M1). The experience in handling checklists of the applicant (Senior Experienced Researcher ER) as well as of Dr Dauby and Prof ter Steege as members of the Project Advisory Panel, will ensure a swift execution of this task.

**NOVEL DATABASE OF TAXONOMIC DISCOVERIES AND RECLASSIFICATIONS (T4-DB) - TAXON-TIME** will use the two species checklists (M1) to compile a comprehensive database documenting discoveries and reclassifications of African and Amazonian tree species over the past 250 years. This database on Temporal Taxonomy of Tropical Trees, hereinafter T4-DB, will record the history of species names and attributes associated to each species description. T4-DB will be compiled by adhering to a rigid Data Management Plan<sup>16</sup> (D1). **1. Explorative research, data collection and organization:** A literature survey will identify attributes to approximate quality of species descriptions (M2). A preliminary analysis<sup>17</sup> suggests the following: 1) number of pages devoted to species description, 2) number of specimens and geographic range covered in a description, 3) number of taxa the type specimen was compared with, 4) presence of vouchers in natural history collections, 5) presence of images in the original description/revision and 6) use of integrative taxonomy (morphological, genetic and spectroscopy data) to describe a species. The world-leading taxonomic experience of the host organization (Instituto Nacional de Ciências Naturais, INCN-CNIC) and the collaborating institutions (INIA, INIA-CINCO, RUB-CSIC) will ensure that appropriate proxies for the quality of species descriptions are identified. Information on the identified proxies will be: (i) extracted with advanced text mining techniques<sup>18</sup> from botanical literature (e.g. Flores & Monographs), digitally available through the Biodiversity Heritage Library and Global Plants and (ii) attributed in T4-DB to the respective species names. Botanical information about synonyms will be retrieved from IPNI<sup>19</sup>, Tropicos<sup>20</sup>, The Plant List<sup>21</sup>, and The Catalogue of Life<sup>22</sup>. **Ontology-driven data integration,** a promising technique to streamline data assembling<sup>23</sup>, will be used to link information retrieved from the various sources. The compilation of T4-DB will benefit from the expertise in Knowledge Discovery and Data Mining of the supervisor at partner organization (Prof Schummer at University of Luxembourg, UL) and UL's world-class infrastructure for data-intensive research. A six-month secondment period in the early phase of TAXON-TIME will guarantee the database is timely compiled. **2. Quality control:** A quality check will verify the assignment of species names to years, authors and/or attributes. To this end, a standard protocol for data filtering will be developed. Experts of the African and Amazonian tree flora, incl. Dr Dauby and Prof ter Steege, will be consulted to verify specific entries (M3). **3. Metadata documentation and data storage:** A scheme for documenting metadata, aligned with the Darwin Core standard, will be adopted to ensure universal usability of T4-DB. The updated database (D2) will be deposited at a public repository (e.g. Zenodo).

**WP3: TRACING THE HISTORY OF TAXONOMIC DISCOVERIES AND RECLASSIFICATIONS**  
TAXON-TIME will use T4-DB to reconstruct the history of taxonomic discoveries and reclassifications for African and Amazonian trees. A Bayesian phylogenetic analysis will be selected to infer rates and drivers of change in species names. TAXON-TIME will replace the connections between ancestor and descendant species that are typically established as sets of phylogenetic trees by connections between species sharing a common name (Fig. 1). Then, **character-dependent diversification-rate models**<sup>24</sup> will determine: 1) correlations between rates at which species names change and the attributes of species descriptions; and 2) the probability that species *j* undergoes a change of name at time *t* (M6). This analysis will reveal taxa for which taxonomic stability results either from increased quality of taxonomic descriptions or from taxonomic effort (M5).

Based on this analysis, TAXON-TIME will go one step further and uncover the geography of taxonomic stability. The probability that species *j* undergoes a change of name at time *t* (M6) will be associated with information on the species' geographical location. Geo-referenced locations of species occurrences will be extracted from: 1) data portals (e.g. GBIF); and 2) databases of tree inventories (such as Forestplots.net<sup>25</sup>, ATDN<sup>26</sup>, and RainBio<sup>27</sup>). The ER is member of Forestplots.net and ATDN. Dr Dauby is part of RainBio. These data will facilitate access to these data. Species locations will be screened for erroneous/uncertain positioning<sup>28,29</sup>. After associating the probability for a name change with the location of species, spatial interpolation will produce a continuous surface of probability of changing names across African and Amazonian rainforests for discrete time intervals. These maps will be merged into a single map in order to identify regions harboring stable names (M7). A distinction between areas of taxonomic stability due to high quality taxonomic descriptions or lack of taxonomic effort will be made. The final map of taxonomic stability will be overlaid with contemporary maps of land cover (D3; M7). Standardised (and comparable) measures of deforestation for African and Amazonian rainforests will be retrieved from the deforestation history of Tropical Forests<sup>30</sup>.

This innovative assessment of taxonomic knowledge is key for evaluating current taxonomic efforts and establishing priorities for taxonomic research<sup>31</sup>, an important task by the Global Taxonomic Initiative (GTI)<sup>32</sup> and the *Millennium Ecosystem Assessment* (MEA)<sup>33</sup>. The ER is member of the GTI. The ER is also a member of the African Biodiversity Target 19, which is a commitment on biodiversity that has included in recent years a number of initiatives to address the gaps in knowledge on biodiversity. The ER is also a member of the African Biodiversity Target 19, which is a commitment on biodiversity that has included in recent years a number of initiatives to address the gaps in knowledge on biodiversity.

This WP draws on the experience of the ER<sup>34,35</sup> and the world-leadership of Dr Hortal (Scientist-in-Charge) in macro-ecological modelling<sup>36,37</sup> and scrutinizing biodiversity data<sup>38</sup>. The expertise of Dr Schummer in Bayesian analysis<sup>39,40</sup>, Dr Bastin in spatial modelling<sup>41</sup> and Dr Dauby and Prof ter Steege on African and Amazonian tree floras will ensure completion of this WP [D3; paper submitted to *Science* (JIF2016= 37.206), or *Science Advances* (JIF2017= 11.51)].

<sup>14</sup>Boyle, B. et al. (2013) BMC Bioinform. 14:16. <sup>15</sup>Recknagel, F. & Michener, W. Eds. (2018) Ecological Informatics. 978-3-319-59929-1. <sup>16</sup>The Plant List. <http://www.theplantlist.org/>. <sup>17</sup>Tropicos <http://www.tropicos.org/>. <sup>18</sup>The Plant List. <http://www.theplantlist.org/>. <sup>19</sup>The Catalogue of Life. <http://www.catalogueoflife.org/>. <sup>20</sup>Michener et al (2012) Trends Ecol Evol 27: 85-93. <sup>21</sup>Madison (2007) Syst Biol. 56:701. <sup>22</sup><http://www.forestplots.net/>. <sup>23</sup><http://atdn.myspecies.info/>. <sup>24</sup>United Nations (FAO), Global Forest Resources Assessment (FAO, Rome, 2010). <sup>25</sup>Smith et al 2015 Phytotaxa. <sup>26</sup><https://www.cbd.int/gti/>. <sup>27</sup><https://oetaf.org/>. <sup>28</sup>Conventual on Biological Diversity. <https://www.cbd.int>.

# 3. Proposta

- Excellence: Two-way knowledge transfer
  - Relevância do projeto para seu treinamento – mérito para a sua carreira
  - Relevância do projeto para a instituição acolhedora – mérito para a instituição

Destacar que voce é um pesquisador competente que precisa de um treinamento específico para sua carreira!!!

## 1.3 Quality of the supervision, training and of the two-way transfer of knowledge between the researcher and the host

At a minimum, address the following aspects:

- Describe the qualifications and experience of the supervisor(s). Provide information regarding the supervisors' level of experience on the research topic proposed and their track record of work, including main international collaborations, as well as the level of experience in supervising/training, especially at advanced level (i.e. PhD and postdoctoral researchers).
- Planned training activities for the researcher (scientific aspects, management/organisation, horizontal and key transferrable skills...).
- For *European Fellowships*: two-way transfer of knowledge between the researcher and host organisation.
- For *Global Fellowships*: three-way transfer of knowledge between the researcher, host organisation, and associated partner for outgoing phase.
- Rationale and added-value of the non-academic placement (if applicable).

<https://ec.europa.eu/research/mariecurieactions/calls/msca-postdoctoral-fellowships-2021>

# 3. Proposta

- Excellence: Two-way knowledge transfer

- Conhecimento ou técnica transferida – O que você vai aprender ou ensinar
- Tipo do treinamento
- Estratégia para transferência do conhecimento – Como? Exemplo: curso de 10 dias, reuniões semanais, etc. **Seja muito específico e claro!**
- Pesquisadores envolvidos – Quem? Nomes das pessoas envolvidas

## TREINAMENTO (duas tabelas) da instituição para o candidato do candidato para a instituição

### 1.2 QUALITY AND APPROPRIATENESS OF THE TRAINING AND OF THE TWO WAY TRANSFER OF KNOWLEDGE BETWEEN THE RESEARCHER AND THE HOST

Training is tailored to expand ER's specific research and career development skills in macroecology and methods for data-intensive research. Knowledge will be transferred to the mutual benefit of ER, MNON-CSIC, UL and collaborating organizations, with a view on their specific needs and strengths.

#### TRANSFERABLE SKILLS FROM THE HOST AND COLLABORATING INSTITUTIONS TO ER

**TRAINING ON RESEARCH SKILLS:** ER will receive outstanding training in three areas (Table 1). 1. **Data-intensive research**<sup>98</sup>. The ER will expand her skills on compiling and analysing large databases through dedicated training sessions and guidance of Prof Schommer during reconcoment to UL (WP1). Knowledge will be acquired on state-of-the-art methods for data management, planning, knowledge discovery and data mining, ontology-driven data curation and integration, data quality control, exploratory analysis and visualization of large datasets. 2. **Bayesian statistics and scripting for reproducible data analysis.** The ER will learn scripting Bayesian analysis using the open software RevBayes<sup>99</sup> for Bayesian inference (WP2). This software offers an R-like interactive language in a C++ environment with more speed for processing. Training will be provided through the course MADPHYLON<sup>100</sup> and interaction with Dr Sanmartín. The ER will also receive training in Bayesian statistics under R environment by collaborating with Dr Rocchini (TMM) on the Bayesian theory and methods for macroecology. The ER will fit the technical skills acquired under Points 1 and 2 into a theoretical framework that links taxonomy and macroecology through mentoring from Dr Hortal (Scientist-in-Charge), broadening her theoretical knowledge and positioning TAXON-TIME into the forefront of macroecology. Dr Hortal is pioneer in assessing quality and bias in biodiversity data and expert in macroecological models. His mentoring will be delivered through direct collaboration and regular meetings (30-min weekly and 90-min monthly, plus lab meetings every second week), followed by larger meetings and work sessions when needed. The ER will eventually take formal courses when appropriate.

**TRAINING OBJECTIVES FOR CAREER DEVELOPMENT SKILLS:** TAXON-TIME will provide wide-ranging training opportunities on skills necessary for the ER's future career development (Table 2). This training will be delivered mostly via mentoring from Dr Hortal and formal courses provided by CSIC. 1. **Science leadership, writing and presentation skills.** The ER will be mentored to enhance her science communication skills, enhancing her demonstrated ability to publish research in competitive journals (D3, D4, D5), deliver oral presentations (Dr1, Dr2, Dr4) and expand her research work to the public through science outreach. The ER will develop her skills in communication activities to broad audiences through MNON-CSIC's public outreach media outlets (Dr1, Dr2). 3. **Supervising skills.** The ER will be involved in supervising MSc students at MNON-CSIC and UL (p3 & p4) through direct interaction and networking with Dr Hortal. The ER will enlarge her scientific network by interacting with the extensive networks of Dr Hortal and Prof Schommer, and by enabling interaction between all researchers involved in TAXON-TIME. 5. **Administrative skills and budget management skills.** The ER will have autonomy in her day-to-day work and budget responsibilities (supervised by the Scientist-in-Charge and MNON-CSIC's finance department). This will advance her experience in financial management and project management. When appropriate, the ER will also receive training on financial management from MNON-CSIC's staff.

**Table 1. Training activities to transfer knowledge and skills from host and collaborating organizations to ER;** TR- training-through-research; HoT - hands-on training of scientific skills; CD - career development skills

TRANSFERRED KNOWLEDGE AND SKILL	TYPE OF TRAINING	STRATEGY TO ACQUIRE TRANSFERABLE KNOWLEDGE AND SKILL	INVOLVED STAFF FROM HOST OR COLLABORATING ORGANIZATIONS
1: Data-intensive research	TR; HoT	i) Weekly meetings on concepts, techniques and revision of scripts; ii) course on Knowledge Discovery and Data Mining; iii) dissemination of data and scripts on public repositories	Prof Schommer
2: Bayesian statistics (RevBayes)	TR; HoT	i) 10-days systematic MADPHYLON on Bayesian inference; ii) ad-hoc and/or quarterly meetings meeting design and implement analysis; iii) joint writing of papers	Dr Sanmartín
3: Bayesian statistics (R environment)	HoT	i) short stay at Dr Rocchini's lab to implement Bayesian models in R; ii) joint writing of papers	Dr Rocchini
4: Macroecological modelling	TR; HoT	i) periodic meetings on concepts, frontiers of macroecology and modelling approaches; ii) joint writing of papers	Dr Hortal
5: Career development	CD	i) interaction with research networks of MNON-CSIC, UL and the advisory panel; ii) research presentations, outreach to stakeholders	MNON-CSIC, UL, Advisory Panel

**TRANSFERABLE ER SKILLS TO THE HOST AND COLLABORATING INSTITUTIONS:** Skills gained by the ER during TAXON-TIME, her pre-existing skills and collaboration network will considerably enhance research, networking and training opportunities for both MNON-CSIC and UL (Table 2).



## 3. Proposta

- Excellence
- Impact
- Implementation

### Interpretação das notas:

**0** – *The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.*

**1 – Poor.** *The criterion is inadequately addressed, or there are serious inherent weaknesses.*

**2 – Fair.** *The proposal broadly addresses the criterion, but there are significant weaknesses.*

**3 – Good.** *The proposal addresses the criterion well, but a number of shortcomings are present.*

**4 – Very good.** *The proposal addresses the criterion very well, but a small number of shortcomings are present.*

**5 – Excellent.** *The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.*

**Garantir mínimo 4.7**

Dissemination (uma tabela)

# 3. Proposta

## Impact: Dissemination & Exploitation

- Produtos derivados dos resultados científicos – Incluir referência aos produtos mencionados nos WPs
- Mensagem principal
- Público alvo – Quem são os interessados nos resultados? Comunidade científica de que área específica (modeladores)? Em que estado da carreira?
- Impacto esperado – Exemplo: visibilidade do projeto (Onde? Para quem?), aumentar conscientização sobre um tema específico

**2.2 QUALITY OF THE PROPOSED MEASURES TO EXPLOIT AND DISSEMINATE THE PROJECT RESULTS**  
 A rigid dissemination plan will be implemented to ensure TAXON-TIME firmly reaches the intended audience, including taxonomists, biodiversity data experts, policy makers and policy funding agencies (Table 5). The dissemination of data is formalised under the Data Management Plan (DMP) which the results of TAXON-TIME have been designed for policy makers (living, using, and not lend themselves for direct use in legislative activities. The dissemination plan will be subject to a periodic review during the entire course of the project (Table 5).

**Table 3. Dissemination plan for the results of TAXON-TIME**

OUTPUT BASED ON SCIENTIFIC DELIVERABLES	KEY MESSAGE AND DELIVERABLES*	TARGETED AUDIENCE	EXPECTED IMPACT
1: Three articles published in open access and preprint servers; data deposited in public archives (GitHub or Zenodo) [C1-C2]	- Answer to the question: "How African shifts in taxonomic knowledge over time also have the potential to affect our understanding of biodiversity?"	Taxonomists, taxonomic and ecological researchers	1) TAXON-TIME results firmly disseminated in the scientific community; paradigm shift in macroecology
2: One oral presentation delivered in an international conference focusing on global biodiversity [C1-C2]	TAXON-TIME delivers an estimated world-wide taxonomic reclassification [C1-C2]	Modeling communities (e.g. iNaturalist), community diversity data infrastructure	High visibility of project's results; taxonomists involved in TAXON-TIME; taxonomic and biodiversity data experts
3: Two oral presentations, one at the European Commission to present a governmental body [C1-C2]	Research reveals taxonomic regions for which taxonomic knowledge is most urgent [C1-C2]	Policy makers (e.g. EC, JRC, EL, and other agencies)	Increase awareness of governmental bodies in Europe and Africa of the importance of funding taxonomic research
4: One Post in a popular science magazine, MNCN-CSIC (Spain), INPA (Brazil), Naturalis (the Netherlands) [C1-C2]	Topic of men- and data-intensive science in macroecology [C1-C2]	EC and MSc students, with attention to early career taxonomists	Encourage young women to explore a method of data-intensive research
5: One oral presentation delivered in an international conference focusing on botany and tropical research [C1-C2]	Public scientific approach to taxonomic reclassification [C1-C2]	General public, taxonomic, tropical ecologists, and macroecologists	Paradigm shift in taxonomy and macroecology

**2.3 QUALITY OF THE PROPOSED MEASURES TO COMMUNICATE THE PROJECT ACTIVITIES TO DIFFERENT TARGET AUDIENCES**

Consistent with the dissemination of results, the research activities of TAXON-TIME will be communicated to a wider audience through a rigid communication plan. Awareness of the project will be the lay public interested in Natural History Collections, as well as events and gender balance in research (Table 5). Project activities will be communicated during the entire course of TAXON-TIME (Table 5).

**Table 4. Communication plan for the activities of TAXON-TIME**

OUTPUT	KEY MESSAGES AND DELIVERABLES*	TARGETED AUDIENCE	EXPECTED IMPACT
1: Project website and video	TAXON-TIME fosters taxonomy and macroecology [C1-C2]	General public interested in natural history collections	1) High visibility of TAXON-TIME will involve digital marketing awareness about the relevance of Natural History Collections and its tools for macroecology
2: Multimedia exhibition in the permanent exhibition	TAXON-TIME fosters for the first time global taxonomic knowledge about Amazonian and African trees in the past 250 years [C1-C2]	General public interested in natural history collections	Taxonomic and macroecology awareness about EC; taxonomic and global biodiversity research
3: Participation in events as MSCA ambassador	TAXON-TIME fosters the contribution of natural history collections to global biodiversity research [C1-C2]	General public interested in natural history collections	Increase awareness of the importance of funding taxonomic research for global biodiversity research
4: Participation in the "Día de la Ciencia en la Ciencia" promoted by the UN and supported by "Fundación para el desarrollo"	TAXON-TIME explores the contribution of female taxonomists to the discovery of Amazonian and African trees [C1-C2]	General public interested in gender awareness	Increase awareness about the scientific contributions of female taxonomists

\*Deliverables are specified in Table 5; \* The link to project website and video will be available on the websites of MNCN-CSIC (Spain), Naturalis (the Netherlands), UL (Luxembourg), and Herbarium of the Brazilian Institute for research in the Amazon (INPA). These websites receive thousands of visits from the general public of virtually all ages and professionals of the educational sector; \*MNCN is the largest Spanish Natural History Museum; its exhibitions receive >150K visitors/year; \* See footnote in Table 2.

## 3. Proposta

- Excellence
- Impact
- Implementation

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**5 – Excellent.** *The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.*

**Garantir mínimo 4.7**

# 3. Proposta

## Implementation

- Gantt Chart organizado por WP
- Incluir atividades de disseminação e organização do projeto (e.g., planejamento de riscos, relatórios)
- Usar os mesmos termos utilizados na descrição dos métodos e análises
- **Google: Gantt Chart Templates**

Table 5. Work plan of TAXON-TIME. Person-month (pm): one person-month equals 168 hours of work; i.e. 21 days of 8 working

Main research / training activities	Year 1															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
<b>WP1: COMPILATION OF T4-DB</b>	Project members involved in task* (pm)															
i. Compilation of check-list	ER	SiC	SS	LB	GD	DR	IS	HtS	Σ	M1						
ii. Lit. review (proxy quality sp. description)	0.9	0.5			0.1			0.1	1.1	0.5	0.4					
iii. Data mining and compilation (UL)**	5.9		1.0		0.1			0.1	7.1	M2	T1	D1	1	1	1	1
<b>WP2: TAXONOMIC DISCOVERIES AND REVISIONS</b>																
i. Integr. of geo-located sp. into T4-DB	0.6								0.6				0.3	0.3	M5	
ii. Compilation of land-cover data	0.5			0.1					0.6			0.2		0.3	M6	
iii. Charac.-dependent divers.-rate models	1.5						0.8		2.3				0.5	0.5	0.5	M7
iv. Interpolation and overlap analysis	0.4			0.2					0.6				T2		0.2	0.2
v. Writing scientific article	2.3	1.0	0.5	0.3	0.3		0.2	0.2	5.3				0.1	0.1	0.2	0.2
<b>WP3: MACROEVOLUTIONARY MODELS</b>																
i. Integration of sp. abundance into T4-DB	0.9							0.2	1.2							M8
ii. Models of change in community structure	1.4	0.5							1.9							0.1
iii. Writing scientific article	2.1	1.0	0.5		0.3			0.2	4.1							0.1
<b>WP4: BIODIVERSITY ESTIMATES</b>																
i. Analysis of time series regression	1.8					0.3			2.1							
ii. Writing scientific article	3	1.0	0.5		0.2	0.3		0.2	5.2							
<b>TOTAL person-month</b>	<b>2.2</b>	<b>4.0</b>	<b>2.5</b>	<b>0.6</b>	<b>1.0</b>	<b>0.6</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	1.0	0.8	1.0	1.0	1.0	1.0	1.0
<b>WP5: DISSEMINATION AND COMMUNICATION</b>																
i. Dissemination and Communication of results	1	0.2							1.2	Cr1				Dr1	Cr2	Dr2
<b>WT: PROJECT MANAGEMENT</b>																
i. Organisation and management	included above															
ii. Progress reporting										O1	O2			O3		O4
ii. Progress monitoring										P1	P2	P2	P1	P2	P1	P2
										Research	Training through research			Dedicated tra		

\*ER: SiC (Scientist-in-Charge) - Dr Hortat; SS (Supervisor during secondment) - Prof S...; LB - Dr ...; GD - Dr Daubi; DR - Dr ...; IS - Dr ...; HtS - Prof ter Steege. \*\*Activity during...  
 • Milestones [M] - [M1] Check lists of AFR AMZ trees compiled; [M2] Proxy of quality of species description defined based in a literature review; [M3] T4-DB compiled; [M4] Ge... Land-cover data compiled; [M6] Character-dependent diversification-rate models built; [M7] Spatial Interpolation of nomenclatural stability performed; [M8] Data on field species change in community structure built; [M10] Bayesian time series analysis performed.



# 3. Proposta

## Layout

- Crie um logo
- Seja criativo (ou peça ajuda) com o layout
- Destaque partes do texto em negrito, inclua tabelas, caixas de texto, figuras

START PAGE COUNT - MAX 10 PAGES

## 1 EXCELLENCE



### 1.1 QUIS NOSTRUD EXERCITATION ULLAMCO

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## 2 IMPACT



### 2.1 QUIS NOSTRUD EXERCITATION ULLAMCO

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## 3 IMPLEMENTATION



### 3.1 QUIS NOSTRUD EXERCITATION ULLAMCO

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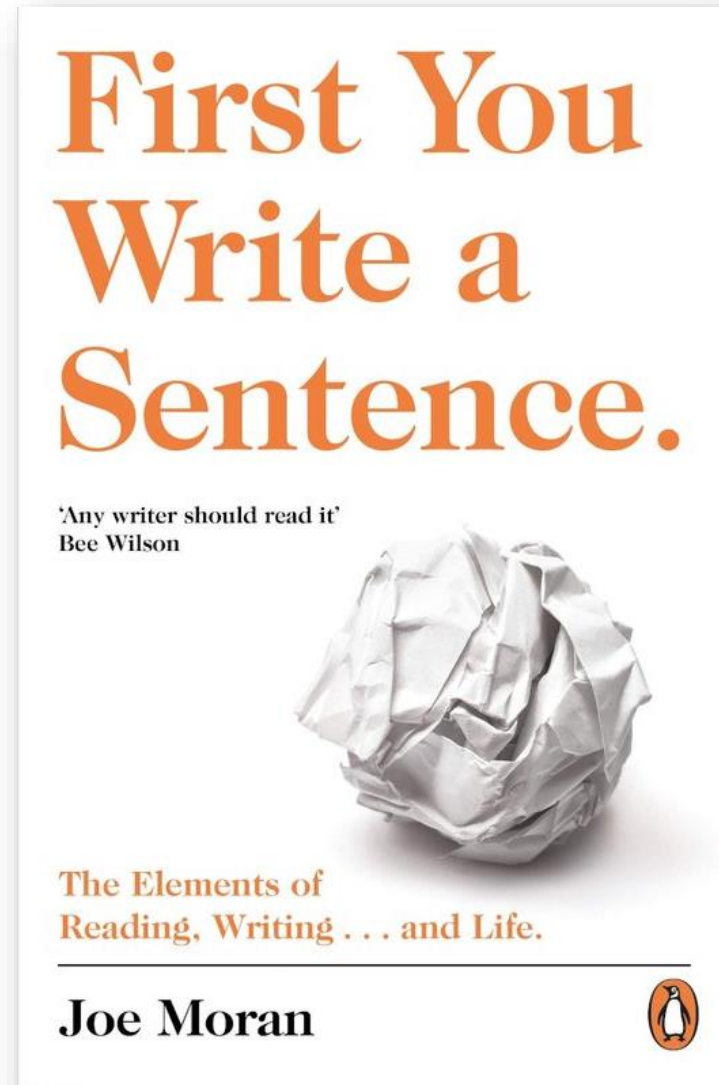
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## 5. Dicas para a escrita

- O acrónimo do projeto deve ser fácil de lembrar e pronunciar (Google “acronym genertor”)
- A proposta deve estar bem amarrada – inclua referências aos produtos finais em toda a proposta
- Durante toda a escrita: revisões e discussões de correções com um colega animado!
- Durante a fase final: revisões e correções diárias com o orientador

## 5. Dicas para a escrita

- Learn to **love the full stop**.
- **Vary the length** of your sentences.
- Shorten your paragraphs.
- Using mostly **short words** in a sentence has a happy side effect: a richer pattern of sounds.
- When the **vowel sounds vary** and there are lots of stresses syllables, each word seems distinct from its neighbours. Every word counts.
- ... fewer writers notice a **bigger problem: repeated sounds**.
- Writing drifts into **obscurity** when it overuses a certain kind of abstract noun: a **nominalization**".



# Webinar

Informação sobre oportunidades para pós-doutoramento com financiamento da Comissão Europeia



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[www.taxon-time.com](http://www.taxon-time.com)

<https://taxon-time.com/a-few-more-thoughts-on-writing-a-msca-if-proposal/>

