

the first time, the author has been able to identify the species of all the individuals.

The following account is based on the results of the field surveys and the examination of the specimens collected.

1.1. *Geographical distribution*—The species was found in the following localities: Tigray, Amhara, Oromia, SNNP, Benishangul-Gumuz, and Southern Nations, Nationalities, and Peoples' Region (SNNPR) (Fig. 1).

1.2. *Ecological distribution*—The species was found in the following ecological zones: highland forest, mountain forest, mountain shrubland, mountain grassland, mountain steppe, mountain desert, and lowland savanna (Fig. 2).

1.3. *Altitudinal distribution*—The species was found at altitudes ranging from 1,200 m to 3,500 m above sea level (Fig. 3). The highest density was recorded between 2,000 and 2,500 m.

1.4. *Seasonal distribution*—The species was found in all seasons. The highest density was recorded during the rainy season (Fig. 4).

1.5. *Population density*—The population density of the species was estimated to be 1.2 individuals per hectare. The highest density was recorded in the Oromia region (Fig. 5).

1.6. *Population trend*—The population trend of the species was estimated to be stable. The highest density was recorded in the Oromia region (Fig. 6).

1.7. *Population structure*—The population structure of the species was estimated to be stable. The highest density was recorded in the Oromia region (Fig. 7).

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PRAVILNIK O MEĐUNARODnim DVOJnim DOKTORATIMA ZNANOSTI

(Cotutelle de these)



340
godina

Sveučilište u
Zagrebu

1. OPĆE ODREDBE

ČLANAK 1.

1. Ovim Pravilnikom uređuju se uvjeti i postupak provođenja međunarodnih dvojnih doktorata znanosti s visokoškolskom ustanovom koja u svojoj zemlji zadovoljava uvjete za izdavanje diploma o stečenom akademskom stupnju doktora znanosti.
2. Međunarodnim dvojnim doktoratima znanosti želi se ojačati sudjelovanje Sveučilišta u Zagrebu u Europskom prostoru visokog obrazovanja i istraživanja, razviti međunarodna suradnja Sveučilišta u Zagrebu, ojačati međunarodna dimenzija doktorskih studija Sveučilišta u Zagrebu, potaknuti mobilnost doktoranada u različitim znanstvenim i kulturnim prostorima te razviti znanstvena suradnja između inozemnih istraživačkih skupina i istraživačkih skupina Sveučilišta u Zagrebu.

ČLANAK 2.

Sporazum o međunarodnom dvojnom doktoratu znanosti sklopljen iz-

1. među Sveučilišta u Zagrebu i inozemne visokoškolske ustanove osnovni je akt kojim se uređuju uvjeti i postupak provedbe međunarodnoga dvojnoga doktorata znanosti za pojedinoga kandidata koji je upisan na doktorski studij Sveučilišta u Zagrebu (ili je pokrenuo postupak za stjecanje doktorata znanosti) i na inozemnu visokoškolsku ustanovu.

ČLANAK 3.

Nadležne službe Rektorata Sveučilišta u Zagrebu (Ured za doktorske

1. studije), na temelju prijedloga mentora doktoranda, zadužene su za komunikaciju između sastavnica (i njihovih nadležnih tijela) i partnerskoga sveučilišta.

2. **SADRŽAJ I OBLIK SPORAZUMA**

ČLANAK 4.

1. Sporazum o dvojnom doktoratu znanosti potpisuje se za svaki doktorski rad posebno ili kao Opći sporazum popraćen Provedbenim sporazumom za svaki doktorski rad.
2. Osim naziva visokoškolskih ustanova koje potpisuju Sporazum, u Sporazumu također mora biti navedeno ime doktoranda, status doktoranda, njegovi osobni podaci, područje u kojem će se raditi doktorski rad ili tema doktorskog rad, imena mentora te taksativno navedeni uvjeti za pristupanje obrani doktorskog rada u obje zemlje potpisnice Sporazuma.
3. Sporazumom je potrebno utvrditi način upisa doktoranda na drugi doktorski studij, minimalno vrijeme doktorskog studija koje doktorand mora provesti na pojedinoj visokoškolskoj ustanovi, period boravka i

rada doktoranda na svakoj od ustanova potpisnica Sporazuma, finansijske obveze svake ustanove u vezi s provedbom Sporazuma o dvojnom doktoratu znanosti.

4. Finansijske obveze podrazumijevaju utvrđivanje načina podmirivanja troškova školarine (i to tako da doktorand ne mora podmirivati troškove na više ustanova istovremeno) te finansijske pomoći koju doktorand može dobiti kako bi snosio troškove svoje mobilnosti.
5. Sporazumom se mogu utvrditi i uvjeti smještaja, podmirivanje putnih troškova, uvjeti pokrivanja troškova zdravstvenog osiguranja, te ostala prava i obveze doktoranda.

ČLANAK 5.

1. Sporazumom je potrebno utvrditi sastav povjerenstva za ocjenu/obranu doktorskog rada, također prema načelu uravnoteženoga udjela članova svake ustanove.
Finansijske obveze prema članovima povjerenstva također moraju biti uređene Sporazumom.
2. Broj članova povjerenstva ne može biti veći od šest, a mora uključivati i vanjske članove.

ČLANAK 6.

1. Sporazumom je potrebno utvrditi na kojem će se jeziku doktorski rad pisati i braniti.
2. Ako se doktorski rad piše na stranome jeziku, mora sadržavati duži sažetak na hrvatskome jeziku.

ČLANAK 7.

1. Sporazumom o dvojnom doktoratu znanosti također mora biti utvrđen postupak izrade i obrane doktorskog rada te način priznavanja/izdavanja diplome.

3.

POSTUPAK PREDLAGANJA I PRIHVAĆANJA SPORAZUMA

ČLANAK 8.

1. Na temelju pravila propisanih na sastavnici gdje je doktorand upisao doktorski studij ili je pokrenuo postupak za stjecanje doktorata znanosti i pisanoga prijedloga sastavnice, stručna služba Rektorata Sveučilišta u Zagrebu izradit će Sporazum o dvojnom doktoratu znanosti.
2. Sporazum potom potpisuju rektor Sveučilišta u Zagrebu, rektor inoze-mne visokoškolske ustanove, mentori i doktorand.
3. Prihvaćanjem sadržaja Sporazuma o dvojnim doktoratima znanosti, sveučilišta i sastavnica prihvataju obveze koje iz Sporazuma za njih proizlaze.
4. Ured za doktorske studije zadržat će jedan original Sporazuma, a po jedan primjerak originala će se proslijediti sastavnici i partnerskom (inozemnom) sveučilištu.
5. Nadležna služba ustanove na kojoj je upisan doktorski studij dužna je evidentirati i pratiti doktoranda u statusu doktoranda s dvojnim dokto-ratom znanosti i provođenje Sporazuma te jednom godišnje podnositi izvješće Rektoratu Sveučilišta u Zagrebu.

4. PROVOĐENJE SPORAZUMA

ČLANAK 9.

1. U skladu s odredbama Sporazuma doktorandi studiraju na doktorskom studiju i izrađuju doktorski rad pod nadzorom mentora u naizmjeničnim razdobljima u obje ustanove, prema načelu ravnoteže.
2. Sporazumom se reguliraju i zajedničke obveze (obaju) mentora.

ČLANAK 10.

1. Za dvojni doktorat znanosti provodi se jedinstveni administrativni postupak na visokoškolskoj ustanovi gdje je, u skladu sa Sporazumom, dogovorena obrana doktorskog rada.

2. Na visokoškolskoj ustanovi gdje doktorand brani doktorski rad, u skladu s propisima zemlje i odredbama Sporazuma, izradit će se dokumentacija o obrani doktorskoga rada koju potpisuju predsjednik i članovi Povjerenstva (izvješće, propisani obrasci i dr.).
3. Nakon obrane doktorskog rada, svaka ustanova potpisnica Sporazuma, u skladu s odredbama Sporazuma, izdat će diplomu doktora znanosti.
4. U oba slučaja diplome moraju izdati ovlaštena tijela po primitku dokumentacije o obrani doktorskog rada te pozitivnoga očitovanja sastavnice, u skladu s odredbama Sporazuma.

ČLANAK 11.

1. Sveučiliše u Zagrebu izdat će diplomu po primitku dokumentacije propisane Sporazumom tj. očitovanje sastavnice, u skladu s odredbama propisa o sadržaju diplome.
2. U diplomi treba navesti, uz ostali propisani sadržaj, napomenu da je riječ o dvojnom doktoratu znanosti, uz navođenje na kojem je drugom sveučilištu stečen te izvorni naslov rada.

ČLANAK 12.

1. Načini zaštite teme, odlaganja, anotacije i reprodukcije doktorskog rada, kao i uvjeti korištenja rezultata zajedničkih istraživanja u laboratorijima i ustanovama koji su u njih bili uključeni, njihovo objavljanje i iskorištavanje uređeni su u skladu s posebnim propisima u svakoj zemlji koja sudjeluje u pripremi doktorskog rada i navedeni u Sporazumu.

5.

PRIJELAZNE I ZAVRŠNE ODREDBE

ČLANAK 13.

1. Kandidati koji prijavljuju doktorski rad izvan doktorskoga studija i koji su magistrirali prije stupanja na snagu Zakona o znanstvenoj djelatnosti i visokom obrazovanju (Narodne novine br. 123/03), dužni su, u skladu sa člankom 120. stavak 4. Zakona, stecí doktorat znanosti obranom doktorskog rada izvan doktorskog studija prema propisima koji su vrijedili na dan stupanja na snagu Zakona, najkasnije u roku od osam godina od dana stupanja na snagu Zakona.

ČLANAK 14.

1. Ovaj Pravilnik stupa na snagu osmog dana od dana objave na oglasnoj ploči. Pravilnik će se istovremeno objaviti na oglasnoj ploči i web stranicama Sveučilišta.

Rektor



Prof. dr. sc. Aleksa Bjelić

the first time, the results were encouraging, but the second time, the results were not as good.

After the first two trials, we decided to change the way we approached the problem. We decided to use a different approach, which involved using a different type of software.

We used a different type of software, which was more user friendly and easier to use. This software allowed us to easily input the data and get the results quickly.

After using this software, we found that the results were much better than the previous trials. We were able to get the results much faster and more accurately.

We also found that the software was very user friendly and easy to use. This made it easier for us to use the software and get the results quickly.

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Pursuant to Article 21 of the Statute of the University of Zagreb, the University of Zagreb Senate has adopted at its 11th meeting in the 339th academic year (2007/2008), held on May 13th, 2008

REGULATIONS FOR INTERNATIONAL DUAL DOCTORATES

(*Cotutelle de these*)



340
years

University of
Zagreb

1.

GENERAL PROVISIONS

ARTICLE 1.

1. These regulations define the terms and procedure of achieving international dual doctorates in coordination with a higher education institution accredited in its country to issue doctoral degree diplomas.
2. International dual doctorates are meant to build up the participation of the University of Zagreb in the European higher education area and the European research area, develop the international cooperation of the University of Zagreb, strengthen the international dimension of doctoral studies at the University of Zagreb, stimulate mobility of doctoral candidates in various areas of research and culture, and develop international cooperation among international research teams and research teams at the University of Zagreb.

ARTICLE 2.

1. Agreement on the international dual doctorate made between the University of Zagreb and a foreign higher education institution is the basic document that defines the terms and procedure of achieving an international dual doctorate for a candidate who is enrolled in a doctoral study programme at the University of Zagreb (or who began the procedure of earning a doctorate) and at the foreign higher education institution.

ARTICLE 3.

1. The relevant offices of the Rectorate of the University of Zagreb (Doctoral Studies Office) are entrusted with providing communication between the constituent part of the University of Zagreb (and its relevant offices) and the partner university, based on a proposal by the mentor of the doctoral candidate.

2. CONTENT AND FORM OF THE AGREEMENT

ARTICLE 4.

1. A separate agreement can be drawn and signed for each dual doctorate or there can be a General Agreement supplemented by a separate Implementation Agreement.
2. Along with the names of the higher education institutions that are signatories to the Agreement, it must also include the doctoral candidate's name, status and personal information, the field or subject of the doctoral dissertation, names of mentors, as well as an itemized list of requirements for defending the dissertation in the countries of both signatory institutions.
3. The Agreement must determine the manner of the doctoral candidate's enrolment in the partner doctoral programme, the minimum study

period at each of the programmes, the duration of stay and work at each of the signatories to the Agreement, and funding obligations of each of the higher education institutions pursuant to the implementation of the Agreement on the dual doctorate.

4. Funding obligations refer to determining the manner of defraying the expenses of tuition (so that the doctoral candidate is not required to pay the expenses at both institutions at the same time) and of providing financial aid to the doctoral candidate for the purpose of covering the expenses of mobility between the institutions.
5. The Agreement may include provisions on accommodation, travelling expenses, health insurance, as well as on other rights and obligations of the doctoral candidate.

ARTICLE 5.

1. The Agreement must determine the makeup of the dissertation defence/evaluation committee according to the principle of equal participation of members from each institution.
2. The committee can have no greater number of members than six, and it must include external members.

ARTICLE 6.

1. The Agreement must determine the language of the dissertation and its defence.
2. If the doctoral dissertation is written in a foreign language, it must include a sizeable summary in the Croatian language.

ARTICLE 7.

1. The Agreement on the dual doctorate must also define the procedure of completing and defending the dissertation as well as the manner of conferral and academic recognition of the diploma.

3.

PROCEDURE FOR PROPOSING AND ACCEPTING THE AGREEMENT

ARTICLE 8.

1. The relevant office of the Rectorate of the University of Zagreb composes the Dual Doctorate Agreement on the basis of regulations in effect at the constituent unit of the University at which the doctoral candidate is enrolled in a doctoral programme and on the basis of a written proposal issued by the constituent unit.
2. The Agreement is then signed by the Rector of the University of Zagreb, the Rector of the foreign higher education institution, the mentors and the doctoral candidate.
3. By accepting the content of the Dual Doctorate Agreement, the Universities and constituent parts accept the obligations as defined by the Agreement.
4. One copy of the Agreement is filed at the Doctoral Studies Office, one is forwarded to the constituent unit of the University of Zagreb, and one is forwarded to the partner (foreign) university.
5. The relevant office at the institution where the doctoral candidate is enrolled in the doctoral programme is required to monitor the doctoral candidate in the dual doctorate status, to screen the implementation of the Agreement, and to make a report once a year to the Rectorate of the University of Zagreb.

4. IMPLEMENTATION OF THE AGREEMENT

ARTICLE 9.

- 1.** In accordance with the Agreement, doctoral candidates study in the doctoral programme and work on their doctoral dissertation under the supervision of mentors in alternating periods at both institutions, according to the principle of balance.
- 2.** The Agreement also regulates the common obligations of both mentors.

ARTICLE 10.

- 1.** A single administrative procedure is applied to dual doctorates at the institution of higher education where the doctoral dissertation defence has been arranged as defined by the Agreement.

2. The documentation (report, required forms, etc.) related to the defence of the dissertation and signed by the Chair and the Members of the Committee, will be filled out at the institution of the higher education where the doctoral candidate is defending the dissertation, in accordance with the regulations of the country of the institution and the provisions of the Agreement.
3. Following the defence of the dissertation, each of the signatory institutions will issue a Ph.D. (*doctor scientarum*) diploma, in accordance with the provisions of the Agreement.
4. Both diplomas must be issued by the authorized parties following receipt of documentation on the dissertation defence and corroboration from the constituent unit of the university, in accordance with the provisions of the Agreement.

ARTICLE 11.

1. The University of Zagreb will issue the diploma following receipt of the documentation as defined by the Agreement, that is, corroboration from the constituent unit, in accordance with the provisions on the content of the diploma.
2. Along with the other required information, the diploma must include an indication of the dual doctorate, with a reference to the other university involved, and well as the original title of the dissertation.

ARTICLE 12.

1. The manner of protecting the subject, filing, annotation and reproduction of the doctoral dissertation as well as the terms of using results of joint research of laboratories and institutions involved and their publication and exploitation are defined in accordance with the relevant regulations in each of the countries involved in the preparation of the doctoral dissertation and they are cited in the Agreement.

5. TRANSLATION AND CONCLUDING PROVISIONS

ARTICLE 13.

1. The candidates who propose a doctoral dissertation outside the doctoral study programme and who earned a Master of Science Degree before the passage of the Science and Higher Education Act (*Narodne novine* br. 123/03), are required in accordance with article 120, paragraph 4 of the Act to earn a doctorate by defending a doctoral dissertation outside the doctoral study programme in accordance with provisions that were in force on the date this Act came into effect, and no later than 8 years following the date the Act came into effect.

ARTICLE 14.

1. These Regulations go into effect 8 days after the date of its publication on the University bulletin board. The Regulations will simultaneously be posted on the bulletin board and the University web pages.

Rector



Prof. Aleksa Bjeliš, Ph.D.

and the corresponding μ -measures μ_{α} and μ_{β} are given by

$$\mu_{\alpha} = \frac{1}{2} \left(\mu_{\text{left}} + \mu_{\text{right}} \right) + \frac{1}{2} \left(\mu_{\text{left}} - \mu_{\text{right}} \right) \tanh \left(\frac{\beta}{2} \right),$$

$$\mu_{\beta} = \frac{1}{2} \left(\mu_{\text{left}} + \mu_{\text{right}} \right) - \frac{1}{2} \left(\mu_{\text{left}} - \mu_{\text{right}} \right) \tanh \left(\frac{\beta}{2} \right).$$

It is clear that the two measures μ_{α} and μ_{β} are related by the equation

$$\mu_{\beta} = \mu_{\alpha} + \frac{1}{2} \left(\mu_{\text{left}} - \mu_{\text{right}} \right) \tanh \left(\frac{\beta}{2} \right).$$

Let us now consider the case where the two boundary conditions are different, i.e. $\mu_{\text{left}} \neq \mu_{\text{right}}$. In this case we have

$$\mu_{\alpha} = \frac{1}{2} \left(\mu_{\text{left}} + \mu_{\text{right}} \right) + \frac{1}{2} \left(\mu_{\text{left}} - \mu_{\text{right}} \right) \tanh \left(\frac{\beta}{2} \right),$$

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