Paper-based productivity ranking of Chilean forestry institutions

Ranking de productividad basado en artículos científicos de instituciones forestales chilenas

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SUMMARY

Using the information from the two main online scientific databases, Scopus and Web of Science (WoS), the scientific productivity of Chilean research institutions associated with the forestry sector was analyzed for the period 2000-2011. The following factors were analyzed: number of publications indexed in WoS and Scopus, citation frequency, impact indexes, h-Index, international contribution, self-citing and subject area of publications. The articles selected indicated affiliation either to faculties that offered undergraduate Forestry Programs in March 2012 or to public and private institutions associated with the forestry sector. Using this information, a ranking of scientific productivity for each institution was established according to the number of publications registered in WoS. Results show that the universities which offered Forestry Programs published 515 articles in WoS indexed journals and 625 in Scopus, corresponding to 88.5 and 85.0 % of the publications in the period, respectively. Universidad de Concepción, Universidad Austral de Chile and Universidad de Chile concentrate more than two-thirds of WoS and Scopus-indexed articles; the number of publications per researcher indicates that Pontificia Universidad Católica de Chile and Universidad de Concepción are in first and second place followed by Universidad Austral de Chile and Universidad de Chile. Most publications (more than 80 %) are concentrated between the years 2006 and 2011. The main research subjects in Universidad de Concepción, Universidad Austral de Chile and Universidad de Chile are Forestry and Biodiversity, and Conservation and Ecology. In Pontificia Universidad Católica de Chile, it is Agriculture.

Key words: forestry publications, productivity ranking, research impact, Scopus, Web of Science.

RESUMEN

Se analizó la productividad científica, para el periodo 2000-2011, de las instituciones de investigación chilenas relacionadas con el sector forestal en base a la información extraída de las dos principales bases de datos científicas en línea Scopus y *Web of Science* (WoS). Los factores analizados fueron: número de publicaciones indexadas en WoS y Scopus, frecuencia de citas, índices de impacto, Índice h, contribución internacional, autocitas y el área temática de las revistas. Se seleccionaron todos aquellos artículos en los cuales se indicaba la afiliación de los investigadores a las facultades que impartían la carrera de Ingeniería Forestal dentro del periodo de estudio y a instituciones públicas y privadas vinculadas con el sector forestal. Con esta información, se estableció un ranking de productividad científica para cada institución en función del número de publicaciones registradas en WoS. Los resultados muestran que las universidades que ofrecen Ingeniería Forestal han publicado 515 artículos en revistas indexadas en WoS y 625 en Scopus, correspondiente al 88,5 y el 85,0 % de las publicaciones en el período, respectivamente. Las universidades de Concepción, Austral de Chile y de Chile concentran más de dos tercios de los artículos indexados en WoS y Scopus; el número de publicaciones por investigador indica que la Pontificia Universidad Católica de Chile y Universidad de Concepción ocupan el primer y segundo lugar seguidos por la Universidad Austral de Chile y la Universidad de Chile. La mayoría de los artículos se publicaron (más del 80 %) entre los años 2006-2011. Las principales áreas de investigación en la universidades de Concepción, Austral de Chile y de Chile son -según la denominación de WoS- *Forestry* y *Biodiversity, Conservation and Ecology*. En la Pontificia Universidad Católica de Chile es *Agriculture*.

Palabras clave: publicaciones forestales, ranking de productividad, impacto de la investigación, Scopus, Web of Science.

INTRODUCTION

In the last few decades, increased attention has been paid to the scientific productivity of institutions and their researchers. The evaluation of scientific production and productivity is a contemporary theme; indeed, an increasing number of journals in specific fields, including forestry sciences, publish articles evaluating researchers, pro-grams or institutions (Bouyssou and Marchant 2010, Buela-Casal *et al.* 2010), partially due to the fact that science policy increasingly includes scientific productivity as a key factor determining financing of future projects. For example, in Chile, in order to accredit doctoral programs, the academic staff must present high levels of scientific productivity (CNA-Chile 2010). In Spain, the Doctoral Programs that meet a number of quality requirements have

access to financial aids (Buela-Casal and Castro 2008, Musi-Lechuga *et al.* 2011). At international level, there are now multiple rankings that compare countries and universities according to their scientific productivity (ARWU, Shanghai Jiao Tong University, THE-QS, Times Higher Education Supplement, WR, Cybermetrics CSIC Lab, SCImago Institutions Rankings, Ranking Iberoamerican SIR 2010) or institutions inside a country (Baeza 2010) in Chile; (Anderson and Tressler 2011) in New Zealand; (Buela-Casal *et al.* 2011) in Spain; (Katranidis *et al.* 2012) in Greece; (Matthews 2012) in South Africa; (Vanclay and Bornmann 2012) in Australia; (Wang *et al.* 2012) in The United State of America; (Wilkins and Huisman 2012) in United Kingdom). The practice of evaluating research productivity has been consolidated in practically every scientific field. According to Abramo and D'Angelo (2011), bibliometric indicators will be preferred to peer-review processes for research evaluation because it is faster, easier and cheaper, and its results are more transparent. However, some authors mention that the use of publication indicators for promotion, funding and scholarships may distort the scientific publication process (Buela-Casal 2010, Chou *et al.* 2013). The Council of Canadian Academies (Council of Canadian Academies 2012) agreed that quantitative indicators must be used to inform rather than to replace the human judgment and expertise in the research funding allocation process.

In the forestry sector, publications on scientific productivity using bibliometric indicators, such as the Journal Impact Factor and the Scimago Journal Ranking, have analyzed: a) the effect that these publications have on the researchers' professional careers (MacLean 2008); b) the prestige rate of the principal forestry academic journals at international level (Vanclay 2008) and those published in China (Perez *et al.* 2004); c) the impact of forestry research related to social sciences and Aboriginal communities in Canada (Klenk *et al.* 2010); d) research productivity of universities, departments, and Forestry Programs in the United States and Canada (Laband and Zhang 2006) or factors that influence citation rates of top-cited papers for faculty in geography and forestry departments across ten major public universities in the United States (Slyder *et al.* 2011); e) publication patterns of award-winning forest scientists (Vanclay 2012), and f) metrics to evaluate research performance in academic institutions (Vanclay and Bornmann 2012).

In Chile, although there are rankings that establish some productivity indicators at university level (Baeza 2010), few are oriented to determining scientific productivity in a particular scientific field. Forestry science, a discipline that has greatly expanded in Chile in the last few decades, offers the opportunity to evaluate the evolution of its scientific productivity. The quantification and qualitative evaluation of the productivity of the research institutions in forestry will permit to know the importance of each institution, its contribution to the scientific development of the sector and the main subject of research. Moreover, results could provide a basis for better understanding of the global development of forest research, and a potential guide for young researchers and applicants to study Forestry Programs. We aim to analyze the scientific productivity of Chilean research institutions associated with the forestry sector for the period 2000-2011, based on the two principal online scientific databases: Scopus and Web of Science (ex-Institute for Scientific Information, ISI).

METHODS

The information employed in this document was manually collected using the online versions of the most important research databases of academic journals: Scopus and Web of Science (WoS) accessed in January 2012. In the online version of Scopus, an "Advanced Search" with the commands AFFILORG for the key words "forest", "forestry", "forestal", "forestales" and AFFILCOUNTRY for "Chile"; in WoS, with Organization (OG) and Country (CU) with the same keywords was used. Even though WoS and Scopus present great similarity, comparative studies between these two data bases indicate they are complementary for research use (Meho and Yang 2007, Chirici 2012). In the search for author name or title of articles, common orthographic signs of the Spanish language such as accent and tilde were not considered.

The scientific productivity was analyzed for the period January 2000 to December 2011 (twelve years) for the following factors: i) number of publications indexed in WoS and Scopus, ii) frequency of citations, iii) impact indexes, iv) self-citation, v) h-Index and vi) international collaboration. The selected articles indicated affiliation to faculties that offered undergraduate Forestry Programs in March 2012 (CIFAG 2012, Universia 2012), as well as public and private institutions associated with the forestry sector (table 1).

All contributions of full-time professors, associated researchers, doctorate students, post-doctoral researchers, visiting professors and emeritus professors for the Faculty/Department of these universities as well as the public and private institutions mentioned above were included. When a publication had several authors from different institutions, it was assigned to each of the participating institutions. No publication was repeated in the databases.

A journal was considered indexed in the WoS in the year that it was included in one of the following Citation Databases: Science Citation Index Expanded, Social Sciences Citation Index and Arts & Humanities Citation Index, whose search was performed on its web site. Scopus indicates the year covered by this database in the "Sources" section of its web site. The impact index was obtained from the online versions of Scimago Journal Rank (SJR) and Journal Impact Factor (JIF) of Journal Citations Reports (JCR) of WoS, in January 2012. We calculated the weighted average SJR and the weighted average JIF of

Table 1. Universities with Forestry Programs and public and private institutions analyzed in the study.
Universidades con Ingeniería Forestal e instituciones públicas y privadas analizados en el estudio.

Universities	Institutions	
	Public institutions	Private institutions
• Pontificia Universidad Católica de Chile (PUC)	• Instituto Forestal (INFOR)	• Forestal Celco S.A./Bioforest
• Universidad Austral de Chile (UACH)	• Corporación Nacional Forestal (CONAF)	• Compañía Manufacturera de Paleles y Cartones (CMPC)
• Universidad Católica del Maule (UCMAULE)		
• Universidad de Chile (UCHILE)		
• Universidad de Concepción (UDEC)		
• Universidad de Talca (UTALCA)		
• Universidad Mayor (UMAYOR)		
• Universidad de la Frontera (UFRO)		
• Universidad Católica de Temuco (UCT)		

each institution; that is, the product of SJR or JIF of each journal by the number of publications in the journal, divided by the total number of publications of the institution indexed in Scopus or WoS, respectively. The h-Index is based on a list of publications ranked downwards by number of times cited. The value of h is equal to the number of papers (N) in the list that has N or more citations (Hirsch 2005). For example, an h-Index of 5 means that five publications have been cited five or more times.

Self-citation of all the publications indexed in JCR was obtained with the Backward Only command using the tool Citation Map of the Web of Science and then manually counting the number of references and self-citations of each publication; while in Scopus manually counting self-citations of the first author. A reference was considered to be a self-citation when the first author cites works in which she/he is the first author. For each article, the ratio (NA/NCB) was calculated; where NA is the number of self-citations and NCB is the number of bibliographic citations.

The contribution of international institutions was estimated by the affiliation of the publications' foreign authors, determining the ratio of the number of foreign institutions and the total number of authors.

To determine the number of researchers for each university that offers an undergraduate program in Forestry, each university's web page was accessed in April 2012. Then, the relative contribution of each researcher was calculated following Laband and Zhang (2006) approach. In the case of two universities, Pontificia Universidad Católica de Chile (PUC) and Universidad Católica del Maule (UCMAULE), that offer undergraduate programs other than Forestry (*i.e.*, Facultad de Agronomía e Ingeniería Forestal and Facultad de Ciencias Agrarias y Forestales, respectively), only the publications of the researchers belonging to the corresponding department (*i.e.*, Departamento de Ecosistemas y MedioAmbiente (PUC) and Departamento de CienciasForestales (UCMAULE)) were consi-

dered. The same procedure was followed with Universidad de la Frontera (UFRO) and Universidad Católica de Temuco (UCT), which no longer maintain an undergraduate Forestry Program but retain an academic unit in forestry sciences. Only the publications of full-time academics were recorded. These data were used to establish a scientific productivity ranking for the institutions considered, organizing them according to the number of publications included in WoS. In addition, the number of researchers of each institution that published in WoS and Scopus, and the subject area where they published were also described.

RESULTS

Scientific productivity. For the study period (2000-2011), 566 articles were published in WoS-indexed journals (six in Social Sciences Citation Index (SSCI) and zero in Arts & Humanities Citation Index (A&HCI)) and 685 on Scopus; where 635 were papers, 24 reviews, 23 conference articles and three letters. All the articles included in WoS were also included in Scopus. The 119 articles difference between WoS and Scopus (685-566) relates to publications in journals edited mainly in Chile (*e.g.*, Gayana Botánica and Bosque)[1] not registered in WoS. The universities which provide Forestry Programs published 515 articles in WoS-indexed articles and 625 in Scopus, corresponding to 88.5 and 85.0 %, respectively, of the period's publications. These figures reflect that universities sustain the forestry research in the country. Universidad de Concepción, Universidad Austral de Chile and Universidad de Chile were responsible for almost over two-thirds of the articles published on WoS (64.9 %) and Scopus (64.9 %) (table 2). Even though the number of publications is probably underestimated because researchers of other faculties/departments than fores-

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[1] Journals indexed in Science Citation Index Expanded in 2008 and 2009, respectively.

Table 2. Ranking of the Chilean forestry institutions organized according to WoS-indexed publications.
Clasificación de las instituciones forestales chilenas organizadas de acuerdo a las publicaciones indizadas en WoS.

Institution (1)	Ranking based on WoS articles (2)	Number of researchers (3)	Scientific production		Scientific productivity		Number of citations		Self citations (%)		Impact indexes (weighted average)		h-Index		IC (%) (16)
			WoS (4)	Scopus (5)	WoS per researcher (6)	Scopus per researcher (7)	WoS (8)	Scopus (9)	WoS (10)	Scopus (11)	JIF (12)	SJR (13)	WoS (14)	Scopus (15)	
Univ. de Concepción	1	25	155	185	6.20	7.40	900	1.018	6.70	6.79	1.86	0.11	15	15	20.45
Univ. Austral de Chile	2	30	141	179	4.70	5.97	821	915	7.80	8.04	1.46	0.07	14	15	21.23
Univ. de Chile	3	29	97	113	3.34	3.90	404	496	6.04	6.42	1.41	0.08	12	13	19.64
Pontificia Univ. Católica de Chile	4	9	83	96	9.22	10.67	220	263	5.66	6.27	1.54	0.10	9	9	15.21
Univ. de Talca	5	14	25	31	1.79	2.21	83	85	-	7.22	0.87	0.05	5	5	9.25
Univ. Católica del Maule	6	10	12	17	1.20	1.70	20	25	7.63	6.80	1.16	0.05	4	3	14.53
Univ. Mayor	7	3	2	4	0.67	1.33	30	35	7.43	-	0.72	0.09	2	3	19.64
Univ. de la Frontera (UFRO	W/I	17	17	19	W/I	W/I	34	21	0.73	0.73	2.27	1.05	3	2	7.14
Univ. Católica de Temuco (UCT)	W/I	7	7	7	W/I	W/I	2	2	1.73	2.21	0.42	0.22	1	1	24.25
Corporación Nacional Forestal	-	W/I	21	27	W/I	W/I	117	145	6.31	6.74	1.64	0.07	7	7	17.19
InstitutoForestal	-	W/I	19	25	W/I	W/I	126	140	5.72	8.50	1.54	0.06	7	8	25.67
BosquesArauco/Bioforest	-	W/I	15	18	W/I	W/I	115	146	8.55	4.91	1.58	0.07	6	6	24.17
Forestal Mininco	-	W/I	12	14	W/I	W/I	81	76	4.91	7.87	1.40	0.06	5	5	35.25
Sum		606	735												

JIF: Journal impact factor according to Journal Citation Report. SJR: Scimago Journal Rank, according to Scimago. IC: International collaboration. W/I: Without information.

214

try may also publish in forestry topics, evidence suggests that most publications are concentrated in universities.

The number of publications (and citations) increased steadily over time in the universities, especially for the universities of Concepción, Austral de Chile, de Chile and Pontificia Universidad Católica de Chile, in this order. This growth has been leading from the year 2006 (figure 1). During the period 2006 to 2011, publications increased more than five times respect to the period 2000-2005 (table 3). Accordingly, the mean annual publications increased from 14.3 to 86.7 and 19.7 to 102.8 in WoS and Scopus, respectively. Even though the number of citations by WoS increased from 1086 to 1865 and by Scopus from 1240 to 2127, for the period 2000-2005 to 2006-2011, the average of citations per article decreased from 12.6 to 3.6 in WoS and from 10.5 to 3.5 in Scopus.

The positive trend observed between 2006 and 2011 is due to several factors such as an increment of international cooperation: during this span the number of papers published by a Chilean researcher with at least one foreign author increased from 13 % to more than 19 %. Other factors are the policy followed by universities to give monetary incentive to publishing in international journals (mainly in WoS) and to hiring professionals with a postgraduate degree (mostly Doctors). In addition to government policies that increased funding for research and innovation (Baeza 2010).

The difference that is observed between the total number of WoS and Scopus publications in table 2, table 3 and Appendix (606 vs 566 and 735 vs 685, respectively) can be explained by the methodology used: when a publication is shared by more than one institution, it was assigned to each one.
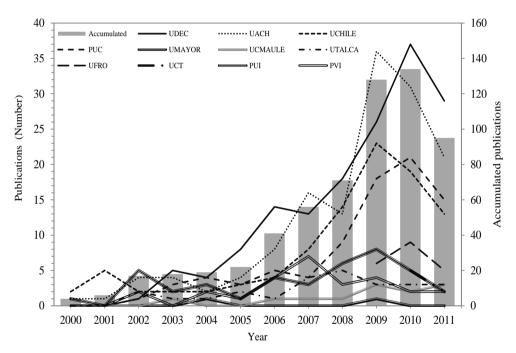

Figure 1. Number of peer-reviewed publications (*i.e.* papers) by institution between 2000 and 2011, (PUI: public institutions and PVI: private institutions).

Número de publicaciones revisadas por pares (*i.e.* artículos) por institución entre 2000 y 2011, (PUI: instituciones públicas y PVI: instituciones privadas).

Table 3. Total number of publications and citations by sub-period.
Número total de publicaciones y citaciones por sub-periodos.

Period	Number of publications		Mean annual publications		Number of citations		Mean annual citations	
	WoS	Scopus	WoS	Scopus	WoS	Scopus	WoS	Scopus
2000-2005	86	118	14.3	19.7	1088	1240	181.3	206.7
2006-2011	520	617	86.7	102.8	1863	2127	310.5	354.5
Total	606	735	50.5	61.3	2951	3367	245.9	280.6

Individual productivity. An indicator of individual productivity is the number of publications per researcher. This factor reduces the potential bias associated to the size of the research institution and explains Pontificia Universidad Católica de Chile and Universidad de Concepción reaching the first and second places of the ranking, with a mean per researcher and year of 0.77 and 0.52 by WoS and 0.89 and 0.62 by Scopus, respectively. The productivity of Pontificia Universidad Católica de Chile by Scopus is higher than the national mean by the year 2009: 0.72 vs 0.89 (CONICYT 2012).

In terms of production volume, 75 % of the publications are concentrated in 10 authors in Universidad de Concepción, nine in Universidad Austral de Chile, six in Universidad de Chile and four in Pontificia Universidad Católica de Chile. Of the 93 full time academics of these universities (table 2), 67 of them have one or more publications and 26 are responsible for the 75 % of the total publications in the study period. In other words, the production in the field of forestry research is concentrated in a few authors. The forestry scientific productivity for Chilean researchers is very similar to that from Italian forestry researchers: a relatively small number are very productive authors and a large number of authors present limited contribution (Chirici 2012).

Citations. Universities de Concepción, Austral de Chile and de Chile are ranked in the top three for number of citations with averages between 4.2 and 5.8 citations per publication according to WoS and between 4.4 and 5.5 according to Scopus (columns 8 and 9, table 2). This position in the ranking varies with the other indicators. Considering only universities -with the exception of Universidad Mayor with a very few publications-, all of them show low value of self-citation mainly Pontificia Universidad Católica de Chile and Universidad de Chile with values of 5.66 and 6.04 % for WoS and 6.27 and 6.42 % for Scopus, respectively (column 10 and 11, table 2); these are very low values when compared with those reported by Minasny *et al* .(2010) for soil sciences, even though these authors considered all the publication's authors, which was not the case for the present study. The self-citation rate varied according to the scientific discipline considered, as shown by Hyland (2003), Fowler and Aksnes (2007) and Minasny *et al.* (2010). This thematic is complex and difficult to quantify since both, the author of an article and the published journal, are interested in self-citation. According to Schreiber (2007), an unbiased citation estimator should exclude self-references.

Impact indexes. The impact factors JIF and SJR are higher for Universidad de Concepción in comparison with Pontificia Universidad Católica de Chile, Universidad Austral de Chile and Universidad de Chile in that order (columns 12 and 13, table 2). The h-Index, that measures the quantity and quality of the scientific productivity, is also higher for the top universities of our ranking, with values of 15 for Universidad de Concepción, 14 for Universidad Austral de Chile, 12 for Universidad de Chile and 9 for Pontificia Universidad Católica de Chile. The h-Index calculated by WoS or Scopus are very similar (column 14 and 15, table 2). International collaboration is higher for Universidad Austral de Chile, followed by Universidad de Concepción and Universidad de Chile (column 16, table 2). Even when collaborative research is essential for scientific progress and development because resource sharing promotes the synergy required to reach the critical mass of knowledge (Katz and Martin 1997), international co-authorship is only a partial indicator because scientific collaboration does not always result in co-authorship, as has been shown by several authors, including Katz and Martin (1997) and Laudel (2002).

Indexing. The 566 WoS-indexed publications for the period studied are distributed between 224 scientific journals (Appendix): 130 are edited in Europe, 50 in the United States, three in Canada, 24 in Latin America—15 of those in Chile—and 14 in Asia, Africa and Oceania. Figure 2 presents the 15 journals that concentrate the highest number of WoS publications with 235 papers (41.5 % of the total publications for the period), where seven are edited in Chile. The remaining 209 journals contain 331 publications with a mean per journal below two articles, which reflects the wide spectrum of publication options as well as the scientific sub-disciplines associated to forestry sciences.

Subjects. The main research subjects -following the categories of the journal indexed in WoS- in Universidad de Concepción, Universidad Austral de Chile and Universidad de Chile are Forestry and Biodiversity, and Conservation and Ecology, with 49, 53 and 37 %, respectively in the three universities. These two research subjects are also present in Pontificia Universidad Católica de Chile but only with 19 %. In this institution, the main subject is Agriculture with 31 %. Other areas of interest are Biotechnology and Applied Microbiology in Universidad de Concepción; Materials Science at Universidad Austral de Chile and Plant Sciences at Universidad de Chile and Pontificia Universidad Católica de Chile (figure 3).

DISCUSSION AND CONCLUSIONS

The Journal Impact Factor and Scimago Journal Rank are indicators used to measure researcher's productivity. However, like self-citation, impact factors are criticized since they can be influenced and biased by many factors (Kurmis 2003). Nonetheless, journal citation indexes are still used in many important decisions, such as which journals should be consulted (Duy and Vaughan 2006), to which journals manuscripts should be sent (Cheung 2008), which researchers can be financially supported (Fuyuno and Cyranoski 2006) or which institutions produce high
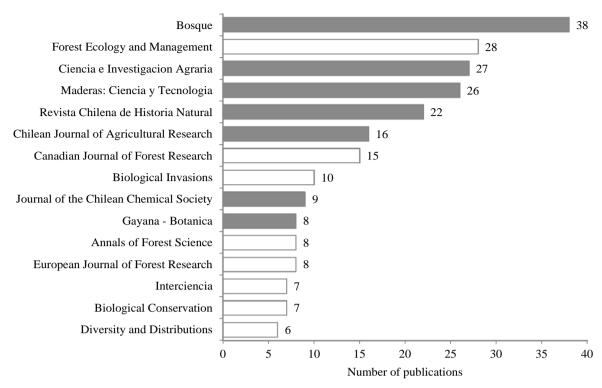
Figure 2. Number of publications in the fifteen most requested journals (dark bars indicate that they are edited in Chile).
Número de publicaciones en las quince revistas más requeridas (barras oscuras indican que son editadas en Chile).
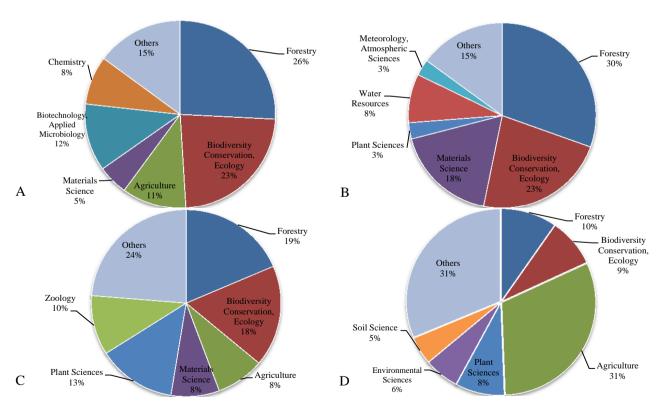

Figure 3. Main areas of research of the best ranked institutions: A) Universidad de Concepción, B) Universidad Austral de Chile, C) Universidad de Chile and D) Pontificia Universidad Católica de Chile.
Áreas principales de investigación de las instituciones mejor clasificadas: a) Universidad de Concepción, b) Universidad Austral de Chile, c) Universidad de Chile y d) Pontificia Universidad Católica de Chile.

quality research (Davis and Royle 1996, Baeza 2010). Another way of assessing influence and relevance of research productivity is Altmetrics (Adie and Roe 2013). By means of this novel tool it is possible to reach a broader audience, since it takes into account the number of time an article has been downloaded, mentioned in twitter or blog posts discussing its papers, etc. (Taylor 2013). But what Taylor (2013) has mentioned is still little robust, hence it cannot make a significant contribution to metric computing.

To evaluate research performance in academic institution, Vanclay and Bornmann (2012), using a derivation of h-Index, built a ranking based on forestry journals published around the world, for the period 2005-2010. In a scale of zero to nine or more (where zero means the least productivity), Universidad de Concepción and Universidad Austral de Chile scored 4, Universidad de Chile and Pontificia Universidad Católica de Chile scored 3 and Universidad de Talca scored 1. This outcome is in agreement with the position of these universities in our ranking.

The preference for a certain journal depends on several factors, including the journal's profile as well as the journal's language (usually English). Language has been an important obstacle to publication in English journals. However, this barrier is being overcome by the increase of English-speaking researchers, the increased importance that universities now place on research, as well as some measures adopted to facilitate the translation into English. At present, almost all national journals in the forestry area allow publishing papers in English, where some of the journals even translate the submitted manuscripts. In addition, the two databases used in this study include a small number of journals in languages other than English. Meho and Yang (2007) reported that WoS and Scopus include only 1.14 % and 0.70 %, respectively, of citation to publications in languages other than English. Accordingly, the choice of one or another database depends mainly on the purpose of the search.

Our results show that more than 35 % of the publications are in Latin-American journals which publish mainly in language different from English. Furthermore, Chilean researchers publish mainly in journals edited in Spanish and in Chile. As Meho and Yang (2007) mention, publications in a language other than English are usually less cited. In addition, older publications could be more cited than a new one, because the last one has less time indexed in a database (Slyder *et al.* 2011).

Regarding the two databases used, our findings suggest that to accurately evaluate and/or rank scientific productivity, one should employ both WoS and Scopus because these databases largely complement, rather than replace, each other.

One of the principal difficulties encountered in this study is the heterogeneity used by Chilean scientists to identify their affiliation and names. In many cases, the name of the institution is translated to English: "Facultad de Ciencias Forestales" is for example translated as Fa-

culty of Forestry, School of Forestry, College of Forestry, Forestry Sciences Faculty or Faculty of Forest/try Sciences. Additionally, the name of the author can vary between publications, for example Donoso P.J. and Donoso P. or Rios D.G. and Rios D. These situations cause distortions when establishing any type of ranking and complicate the maintenance of a reliable list of indexed publications from public databases. Thus, author names should be consistent in all the publications and hopefully the authors place their affiliation in Spanish (Universidad and Facultad, and when necessary Departamento, Laboratorio or any other pertinent affiliation allowed by the journal). The establishment of a system to digitally identify the author, similar to digital object identifier (DOI), could facilitate proper indexing.

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