

IFLA Satellite Pre-Conference: Open Access to Science Information  
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# ZS Project: *Zoological Science* Meets Institutional Repositories

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# Objective

- To determine how article deposition in **Institutional Repositories (IRs)** affects both **citations** and **e-journal usage**.

# Motivation

- Earlier Studies:
  - Open Access and citations
  - Open Access and e-journal usage

# Motivation

- Earlier Studies:
  - Open Access and citations
  - Open Access and e-journal usage
- There has been no sufficient analysis about **Institutional Repositories** and citations / e-journals usage.

# *Zoological Science* meets Institutional Repositories Project

- Project Objectives:
  - To clarify the **details of usage** for articles deposited in IRs
  - To verify **whether IR deposit increases the number of article citations**
  - To verify **whether IR deposit decreases the number of publisher e-journal full-text downloads**
- Project members:
  - Hokkaido University, Kyoto University, University of Tsukuba and the Zoological Society of Japan

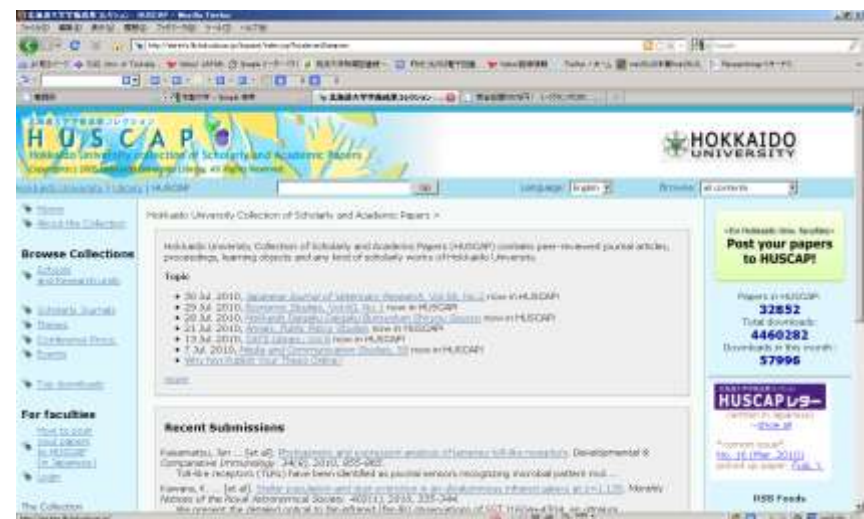
# What is *Zoological Science*?

- Leading international journal on Zoology
  - Since 1984 (society formed in 1878)
  - Available via BioOne.2, UniBio Press (Current), and J-stage (through 2009)
  - IF: 0.821 (2009)
- Published by the Zoological Society of Japan
  - One of the oldest societies in Japan
  - 2,700 members



# Hokkaido University

- Hokkaido University
  - 11,610 Undergraduates
  - 3,470 Graduates
  - 2,038 faculties
- HUSCAP: Hokkaido University Collection of Scholarly and Academic Papers
  - Since 2005
  - 32,852 items
  - <http://eprints.lib.hokudai.ac.jp/>





# Kyoto University

- Kyoto University
  - 13,225 Undergraduates
  - 9,319 Graduates
  - 2,865 faculties
- KURENAI: Kyoto University Research Information Repository
  - Since 2006
  - 80,103 items
  - <http://repository.kulib.kyoto-u.ac.jp/dspace/>



# University of Tsukuba

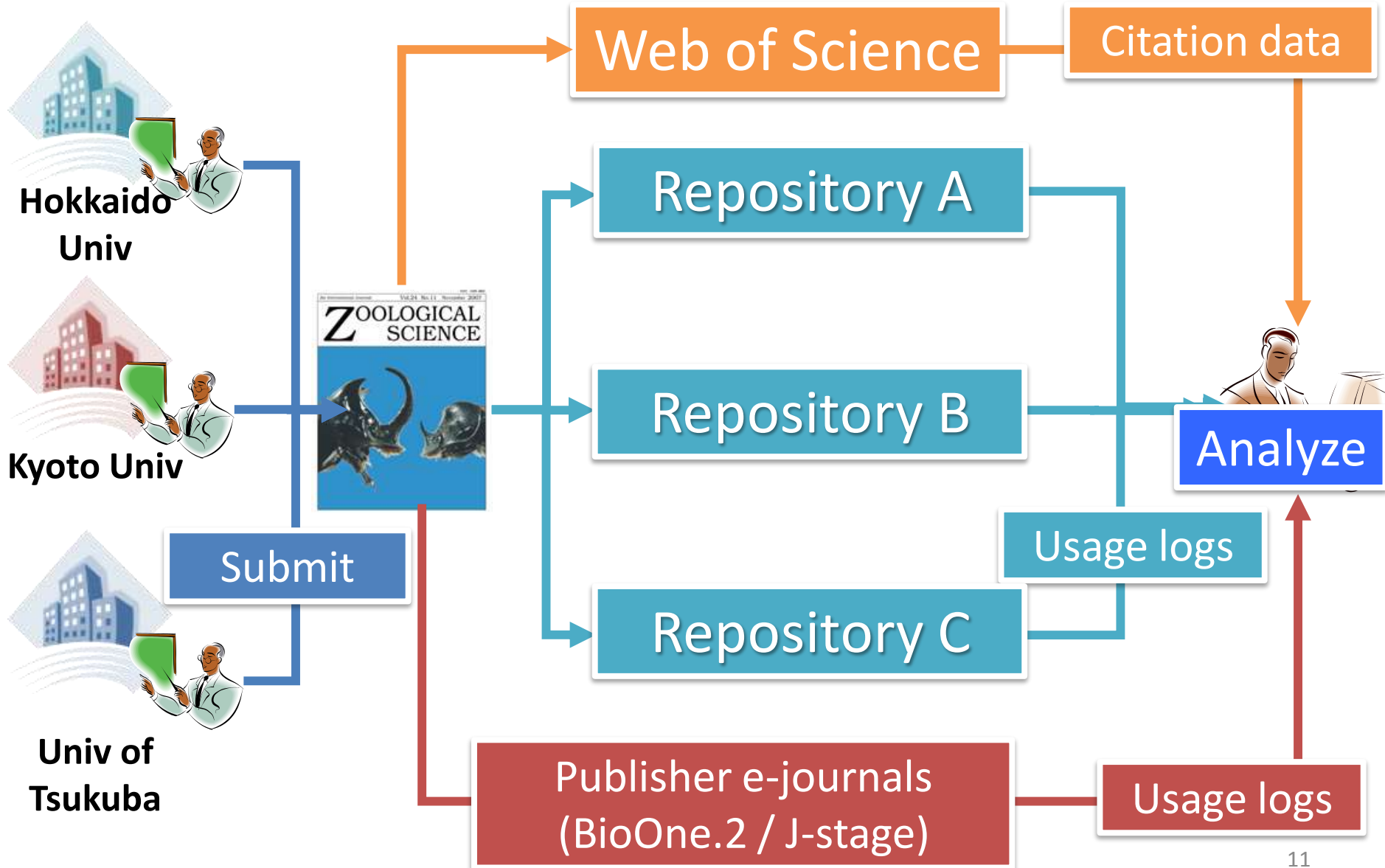
- University of Tsukuba
  - 9,032 Undergraduates
  - 6,777 Graduates
  - 1,638 faculties

- Tsukuba Repository

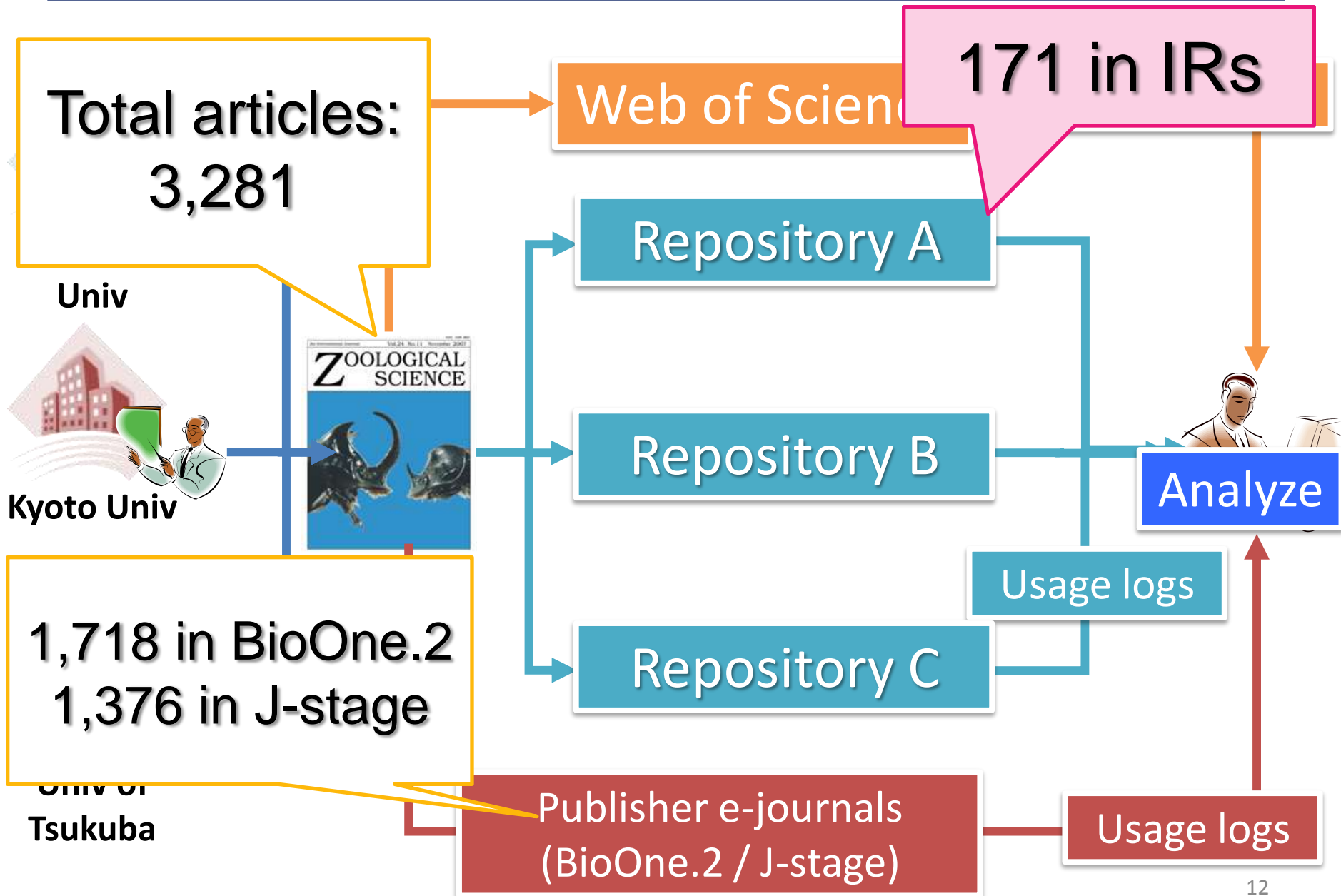
- Since 2007
- 17,117 items
- <http://www.tulips.tsukuba.ac.jp/dspace/>



# Project outline



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# Project outline

The log available  
since 2009

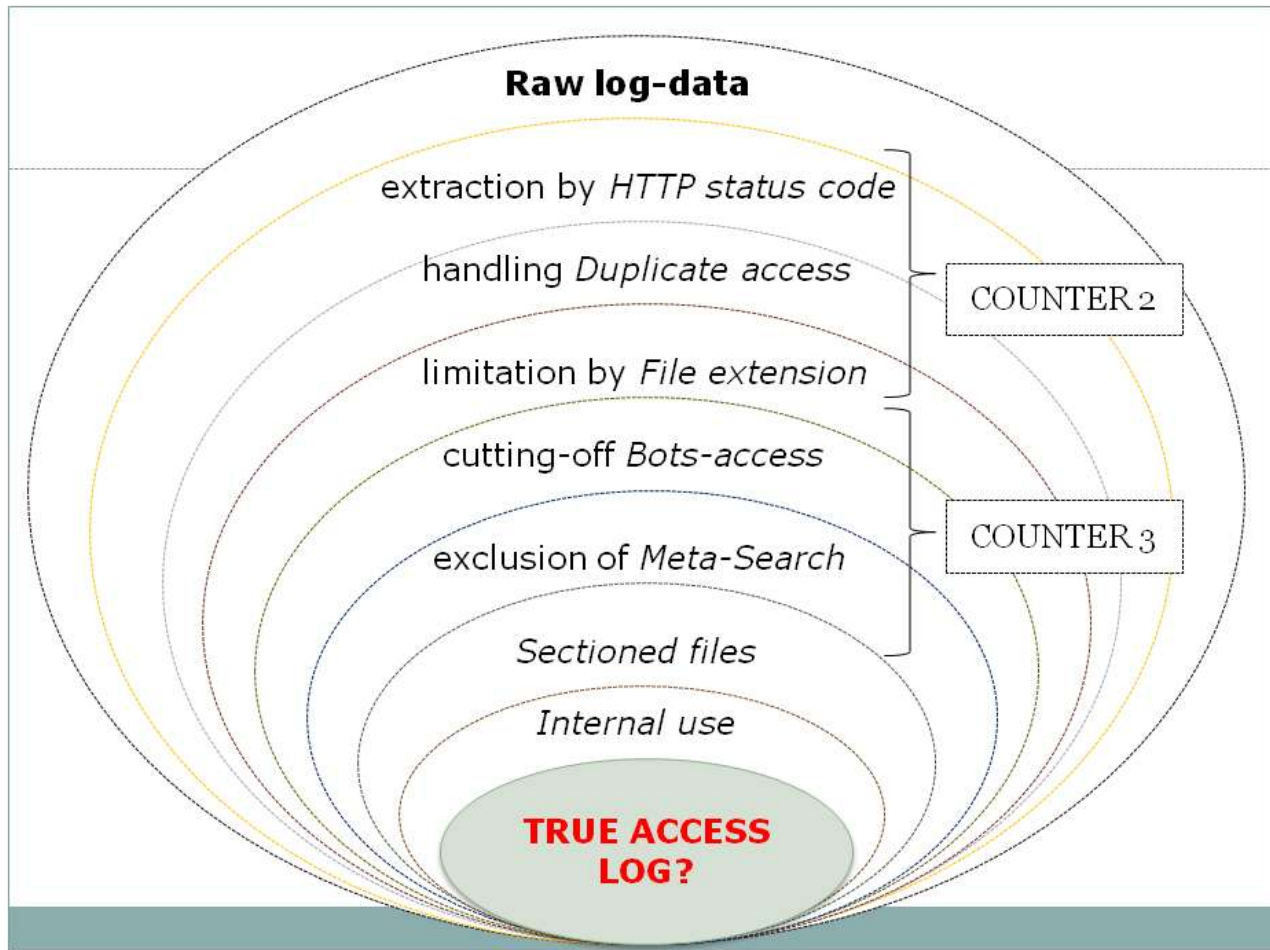
171 in IRs

1,718 in BioOne.2

1,376 in J-stage

Logs available  
since 2008

# Log filtering procedure



Yoshinori Sato(2008).

# (1) IR usage statistics

# IR usage statistics

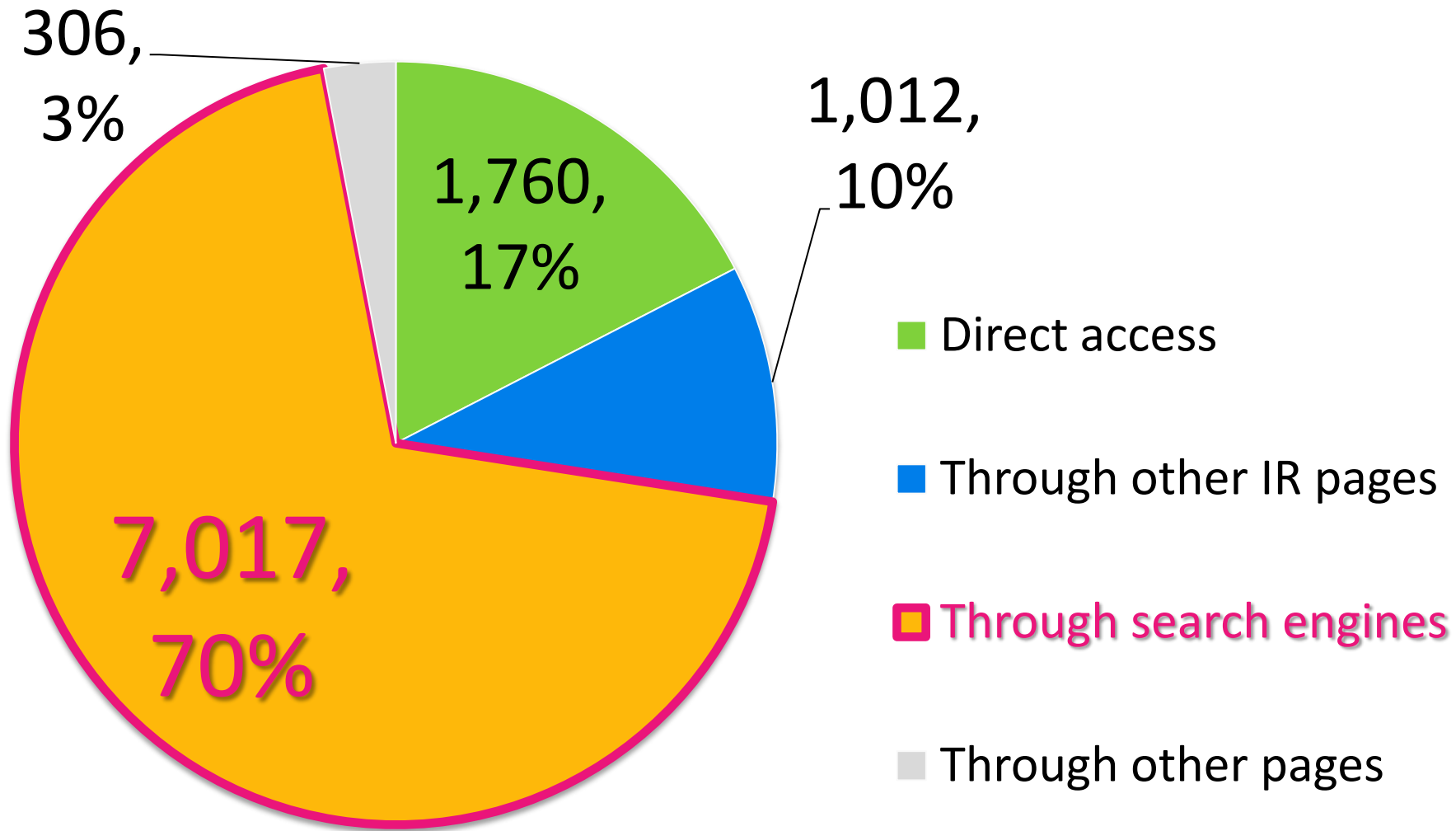
- Total number of downloads (2008-2009):

–10,099

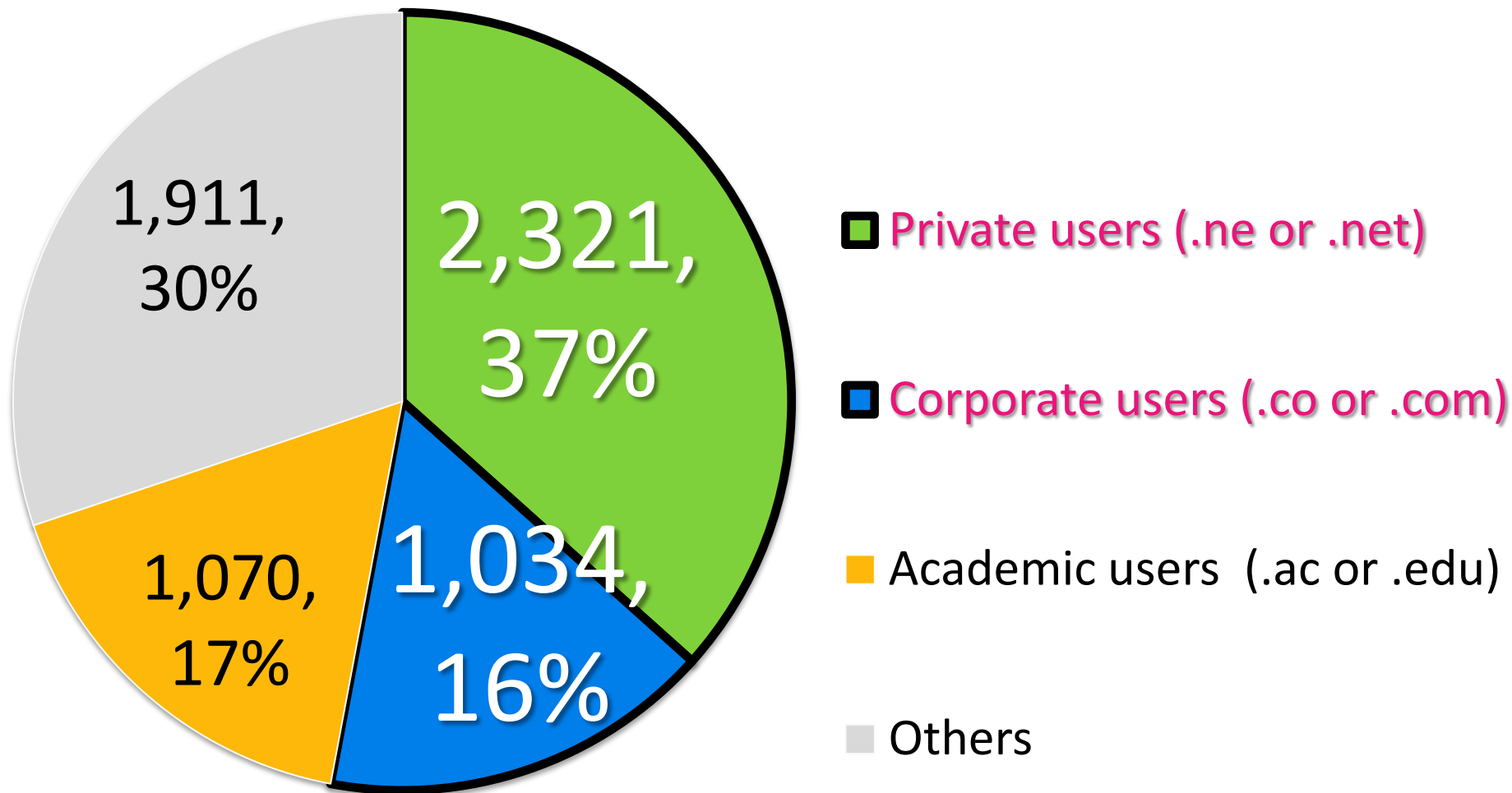
- Average: 59.0
- Median: 43.0



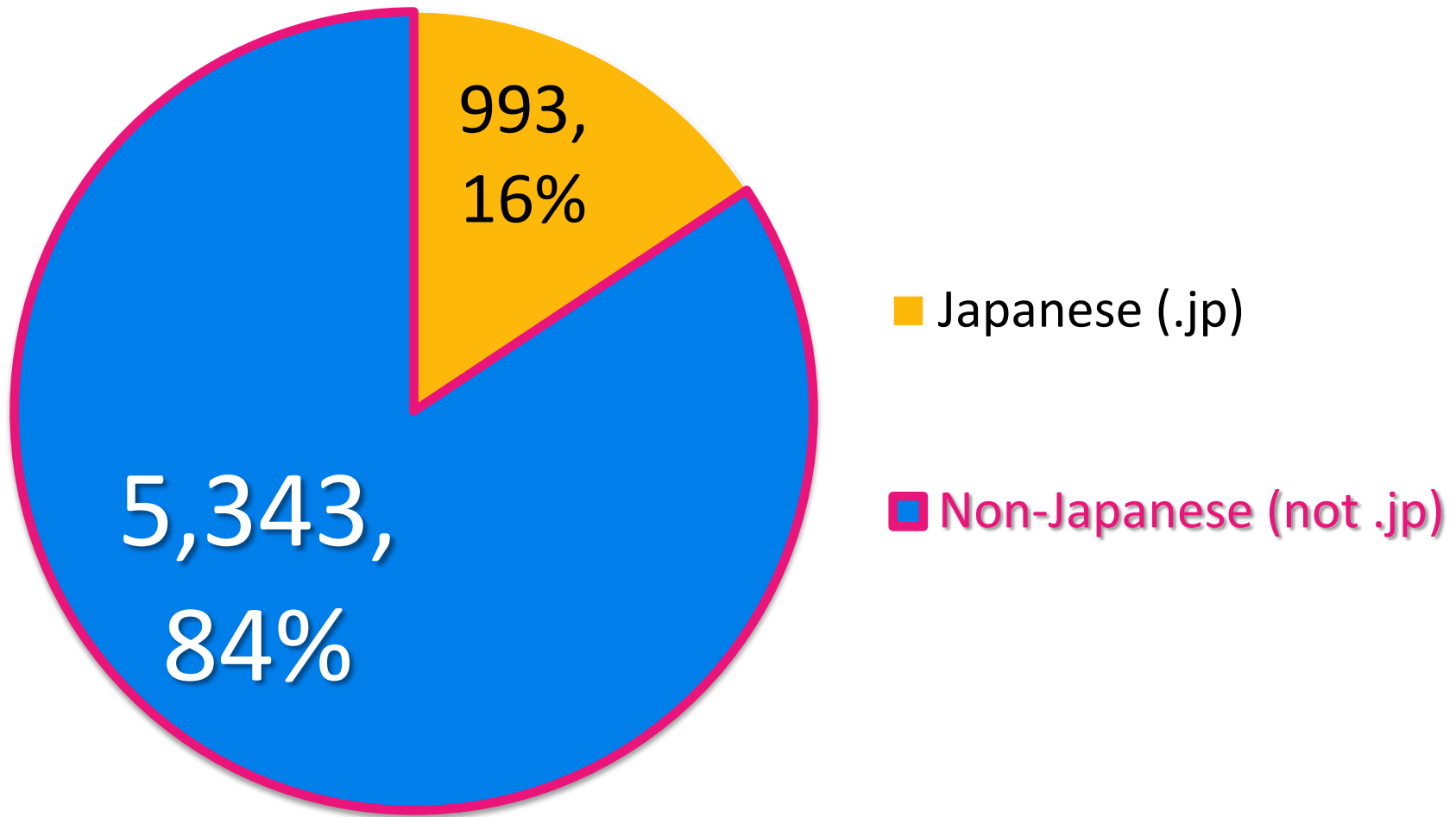
# Access path to articles deposited in IRs (2008-2009, $N = 171$ )



# Types of user groups for articles deposited in IRs (2008-2009, $N = 171$ )



# Full-text downloads by Japanese and non-Japanese (2008-2009, $N = 171$ )



# Top 10 countries that used IRs, J-stage and cited *Zoological Science* (N = 171)

Rank	IR downloads		J-stage downloads		ISI citations	
	Country	Downloads	Country	Downloads	Country	Citing authors
1	<b>USA</b>	<b>2,388</b>	Japan	2,052	Japan	383
2	<b>Japan</b>	<b>993</b>	China	998	USA	178
3	Germany	183	USA	851	Canada	56
4	India	183	EU	576	China	52
5	Russia	157	Indonesia	386	England	37
6	Indonesia	153	India	287	Germany	34
7	Italy	151	Thailand	190	Italy	31
8	Australia	150	Korea	184	France	29
9	England	147	Taiwan	182	Taiwan	27
10	Brazil	117	Italy	178	Argentina	23

# (2) IR deposit & publisher downloads

# Descriptive statistics of J-stage full-text downloads

	deposited in IRs ( <i>N</i> =126)	not deposited in IRs ( <i>N</i> =1,192)
Average	<b>57.9</b>	51.6
Median	<b>50.5</b>	36.0
Maximum	184	935
Minimum	8	0

# Descriptive statistics of BioOne.2 full-text downloads

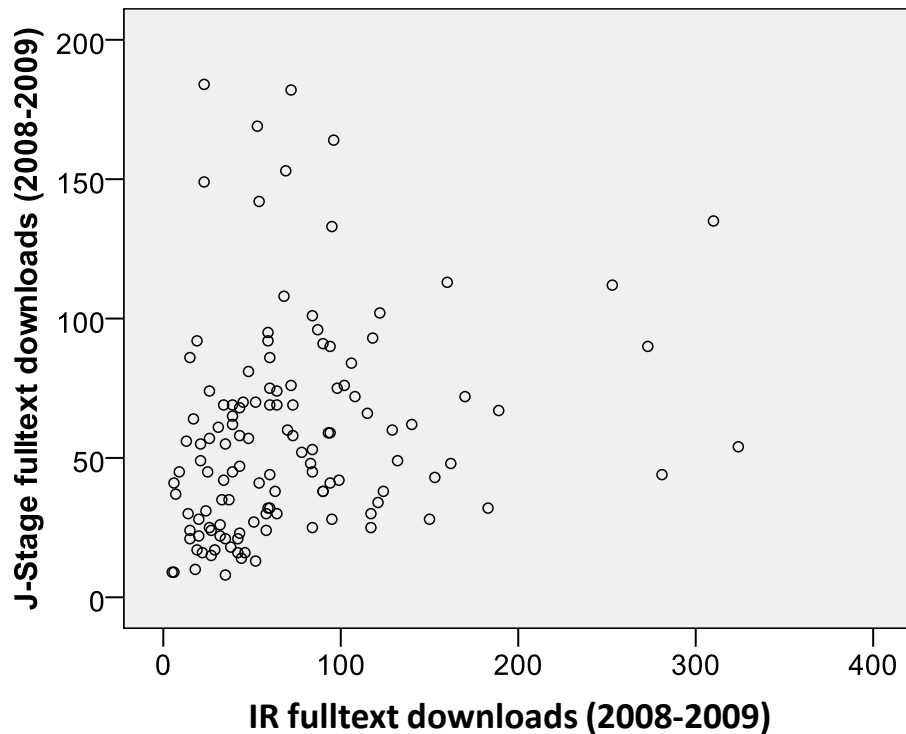
	deposited in IRs ( <i>N</i> =135)	not deposited in IRs ( <i>N</i> =1,629)	not deposited in IRs (excluding articles published in 2008, <i>N</i> =1,476)
Average	52.4	62.1	54.6
Median	35.0	43.0	39.0
Maximum	287	840	793
Minimum	3	0	0

# Descriptive statistics of BioOne.2 full-text downloads

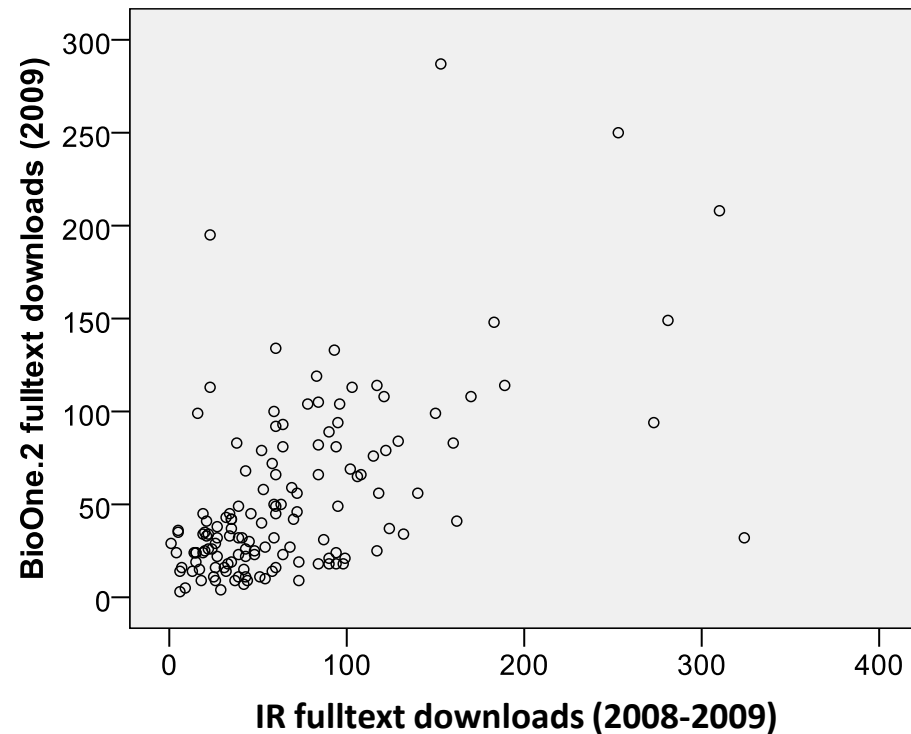
	deposited in IRs ( <i>N</i> =135)	not deposited in IRs ( <i>N</i> =1,629)	not deposited in IRs (excluding articles published in 2008, <i>N</i> =1,476)
Average	52.4	62.1	54.6
Median	35.0	43.0	39.0
Maximum	287	840	793
Minimum	3	0	0



# IR full-text downloads and J-stage/BioOne.2 downloads (Plots)

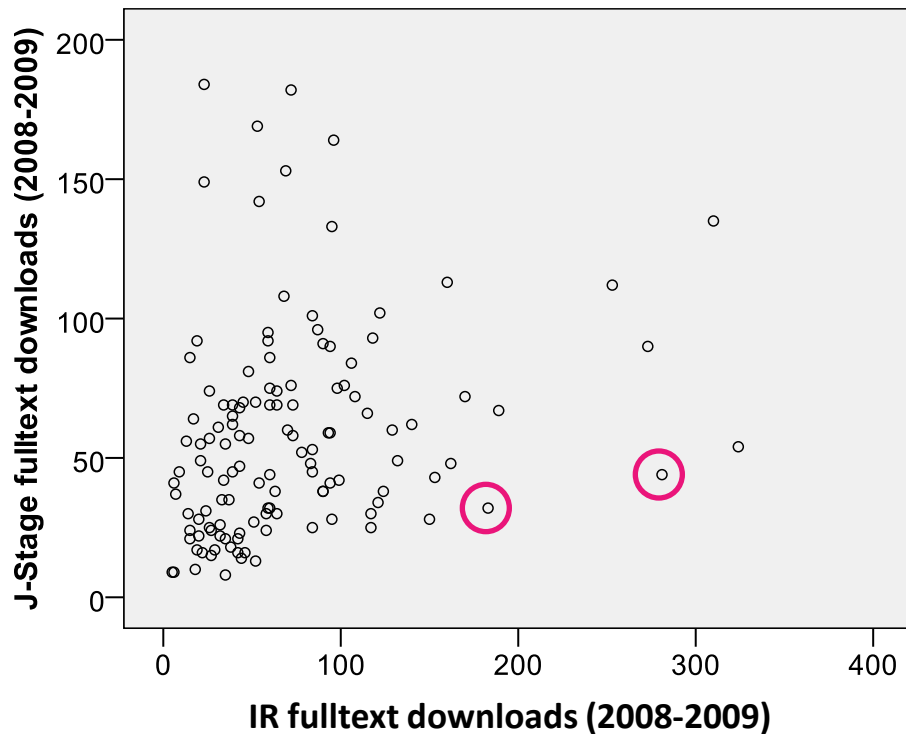


$$\rho = 0.363$$

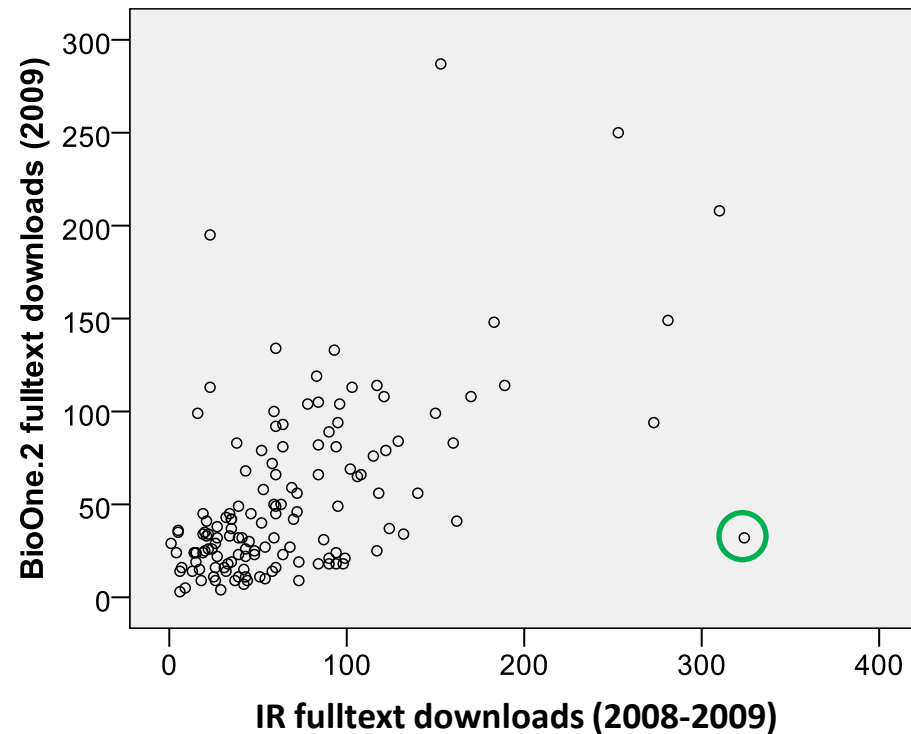


$$\rho = 0.519$$

# IR full-text downloads and J-stage/BioOne.2 downloads (Plots)



$$\rho = 0.363$$



$$\rho = 0.519$$

# (3) IR deposit & citations

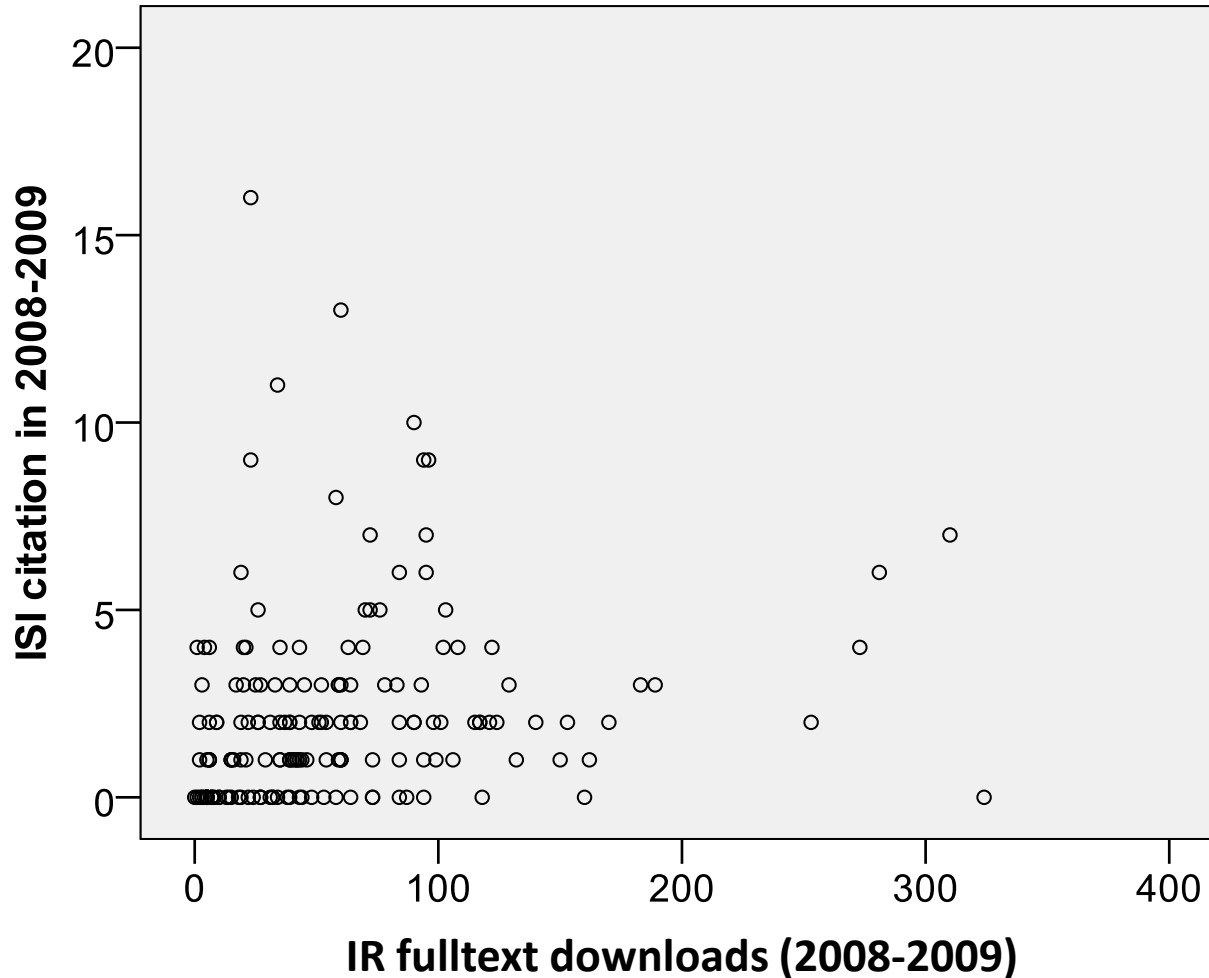
# Descriptive statistics of ISI citations between 2008 and 2009

	deposited in IRs ( <i>N</i> =171)	not deposited in IRs ( <i>N</i> =3,144)
Average	2.2	1.2
Median	2.0	0.0
Maximum	16	24
Minimum	0	0

# Descriptive statistics of ISI citations between 1984 and 2007

	deposited in IRs ( <i>N</i> =171)	not deposited in IRs ( <i>N</i> =3,144)
Average	7.3	6.1
Median	5.0	3.0
Maximum	43	193
Minimum	0	0

# IR full-text downloads and ISI citations (Plots)



$$\rho = 0.334$$

# Will IR deposit decrease publisher e-journal usage?

- **No, it won't.**

- IR registration did not reduce the number of publisher e-journal full-text downloads.

- The reason may be that:

- Articles deposited in IRs were mainly used by **non-researchers** through **search engines**.

- They are thought to be **new readers**.

- Existing readers did not switch to IRs.

# Will IR deposit increase the number of citations?

- **We could not determine.**
- The project is still going on and we want to do more studies.



# Further analyses

- Another analysis will be needed.

For example:

- Analyze relationships between institutions of IR users and authors who cited *Zoological Science*
- *existing readers : new readers*  $\stackrel{?}{\neq}$  *subscriber : non-subscriber* ?

# Conclusion

- Depositing journal articles in IRs, even after a one-year embargo, will do **more good than harm** to scholarly journal publishers.
  - Existing readers **will not switch to IRs.**
  - IRs will attract **new readers**, some of whom read articles that are not read by researchers.

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Thank you for  
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