<table>
<thead>
<tr>
<th>著者</th>
<th>Sato Sho, Nagai Yuko, Koga Takashi, Sugita Shigeki, Saito Mika, Itsumura Hiroshi</th>
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<tr>
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<td><a href="http://hdl.handle.net/2241/106053">http://hdl.handle.net/2241/106053</a></td>
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ZS Project: Zoological Science Meets Institutional Repositories

Sho Sato (min2fly@slis.tsukuba.ac.jp), Yuko Nagai, Takashi Koga, Shigeki Sugita, Mika Saito, Hiroshi Itsumura
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• Discussion
• 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

- 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/](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/](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/](http://www.tulips.tsukuba.ac.jp/dspace/)
Total articles: 3,281

1,718 in BioOne.2
1,376 in J-stage

Publisher e-journals (BioOne.2 / J-stage)

Repository A

Repository B

Repository C

Usage logs

Analyze
Project outline

The log available since 2009

1,718 in BioOne.2
1,376 in J-stage

171 in IRs

Logs available since 2008

Total articles: 3,281
1,718 in BioOne.2
1,376 in J-stage
171 in IRs

Logs available since 2008
Log filtering procedure

(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)

- Direct access: 7,017, 70%
- Through search engines: 1,760, 17%
- Through other IR pages: 1,012, 10%
- Through other pages: 306, 3%

Access path distribution among different paths for accessing articles deposited in IRs.
Types of user groups for articles deposited in IRs (2008-2009, N = 171)

- Private users (.ne or .net): 2,321 (37%)
- Corporate users (.co or .com): 1,070 (17%)
- Academic users (.ac or .edu): 1,034 (16%)
- Others: 1,911 (30%)

- Japanese (.jp): 993 (16%)
- Non-Japanese (not .jp): 5,343 (84%)
### Top 10 countries that used IRs, J-stage and cited *Zoological Science* \((N = 171)\)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>IR downloads</th>
<th>J-stage downloads</th>
<th>ISI citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td><strong>2,388</strong></td>
<td>Japan</td>
<td>2,052 Japan</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>993</td>
<td>China</td>
<td>998 USA</td>
</tr>
<tr>
<td>3</td>
<td>Germany</td>
<td>183</td>
<td>USA</td>
<td>851 Canada</td>
</tr>
<tr>
<td>4</td>
<td>India</td>
<td>183</td>
<td>EU</td>
<td>576 China</td>
</tr>
<tr>
<td>5</td>
<td>Russia</td>
<td>157</td>
<td>Indonesia</td>
<td>386 England</td>
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<td>6</td>
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<td>153</td>
<td>India</td>
<td>287 Germany</td>
</tr>
<tr>
<td>7</td>
<td>Italy</td>
<td>151</td>
<td>Thailand</td>
<td>190 Italy</td>
</tr>
<tr>
<td>8</td>
<td>Australia</td>
<td>150</td>
<td>Korea</td>
<td>184 France</td>
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<tr>
<td>9</td>
<td>England</td>
<td>147</td>
<td>Taiwan</td>
<td>182 Taiwan</td>
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<tr>
<td>10</td>
<td>Brazil</td>
<td>117</td>
<td>Italy</td>
<td>178 Argentina</td>
</tr>
</tbody>
</table>
(2) IR deposit & publisher downloads
### Descriptive statistics of J-stage full-text downloads

<table>
<thead>
<tr>
<th></th>
<th>deposited in IRs</th>
<th>not deposited in IRs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(N=126)</td>
<td>(N=1,192)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>57.9</td>
<td>51.6</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>50.5</td>
<td>36.0</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>184</td>
<td>935</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>
Descriptive statistics of BioOne.2 full-text downloads

<table>
<thead>
<tr>
<th></th>
<th>deposited in IRs ($N=135$)</th>
<th>not deposited in IRs ($N=1,629$)</th>
<th>not deposited in IRs (excluding articles published in 2008, $N=1,476$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td><strong>52.4</strong></td>
<td><strong>62.1</strong></td>
<td><strong>54.6</strong></td>
</tr>
<tr>
<td>Median</td>
<td><strong>35.0</strong></td>
<td><strong>43.0</strong></td>
<td><strong>39.0</strong></td>
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<tr>
<td>Maximum</td>
<td><strong>287</strong></td>
<td><strong>840</strong></td>
<td><strong>793</strong></td>
</tr>
<tr>
<td>Minimum</td>
<td><strong>3</strong></td>
<td><strong>0</strong></td>
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<td>3</td>
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</tr>
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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

<table>
<thead>
<tr>
<th></th>
<th>deposited in IRs (N=171)</th>
<th>not deposited in IRs (N=3,144)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average</strong></td>
<td>2.2</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
## Descriptive statistics of ISI citations between 1984 and 2007

<table>
<thead>
<tr>
<th></th>
<th>deposited in IRs ($N=171$)</th>
<th>not deposited in IRs ($N=3,144$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average</strong></td>
<td>7.3</td>
<td>6.1</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>43</td>
<td>193</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
IR full-text downloads and ISI citations (Plots)

ρ = 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 = 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.
Acknowledgements

- Yoshinori Sato, Tohoku Gakuin University, Japan
- Susan Skomal, BioOne
- Thomson Reuters
- Institutional Repositories Program, National Institute of Informatics, Japan
- This research was partially supported by the MEXT, Grant-in-Aids for scientific research (c), 20500219, 2008-2010.
Thank you for your attention!

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