Considerations for a more responsible dissemination of alien bamboos

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Biological invasions: South Africa
Biological invasions

**Invasive plants** (Richardson *et al.*, 2011):

“Naturalized plants that produce reproductive offspring, often in very large numbers, at considerable distances from parent plants and thus have the potential to spread over a considerable area.”

- Biological invasions widely heralded as the second greatest agent of species endangerment and extinction (Pejchar *et al.*, 2009)
- Invasions are typically the intended or unintended consequence of economic activity (Perrings 2001)
Ecology and Evolution

Invasion of dwarf bamboo into alpine snow-meadows in northern Japan: pattern of expansion and impact on species diversity

Gaku Kudo¹, Yukihiro Amagai¹⁻², Buho Hoshino² & Masami Kaneko²

*Pinus pumila*

Dwarf bamboo

Snow meadow
SPECIAL ISSUE

Impacts of moso bamboo (*Phyllostachys pubescens*) invasion on dry matter and carbon and nitrogen stocks in a broad-leaved secondary forest located in Kyoto, western Japan

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![Graph](image)

**Fig. 5** (a) Ratios of non-photosynthetic organ to photosynthetic organ dry weights (*C/F*); (b) ratios of aerial organ to root dry weights (*T/R*) for whole plants, broad-leaved trees, and *P. pubescens*. □, SF; ■, MF1; □, MF2; ■, BF.
Non-indigenous bamboo along headwater streams of the Luquillo Mountains, Puerto Rico: leaf fall, aquatic leaf decay and patterns of invasion

PAUL J. O’CONNOR*, ALAN P. COVICH*, F. N. SCATENA† and LLOYD L. LOOPE‡

Ecological studies on bamboo expansion: process, consequence and mechanism

YANG Qing-Pei, YANG Guang-Yao*, SONG Qing-Ni, SHI Jian-Min, OUYANG Ming, QI Hong-Yan, and FANG Xiang-Min
The global dissemination of bamboo
The global dissemination of bamboo: Phylogenetic signal?
The global dissemination of bamboo: Who’s winning the popularity contest?
The global dissemination of bamboo: Who’s winning the popularity contest?

<table>
<thead>
<tr>
<th></th>
<th>Cultivars (%)</th>
<th>Varieties (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Not introduced</strong></td>
<td>13 (9%)</td>
<td>30 (41.7%)</td>
</tr>
<tr>
<td>(n=1437)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Introduced</strong></td>
<td>131 (90.9%)</td>
<td>42 (58.4%)</td>
</tr>
<tr>
<td>(n=223)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Invasive</strong></td>
<td>70 (48.6%)</td>
<td>5 (6.9%)</td>
</tr>
<tr>
<td>(n=13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>All species</strong></td>
<td>144</td>
<td>72</td>
</tr>
<tr>
<td>(n=1673)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Challenges and trade-offs in the management of invasive alien trees

Brian W. van Wilgen · David M. Richardson

<table>
<thead>
<tr>
<th>Benefits associated with tree species</th>
<th>Impacts associated with tree species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Destructive weeds</td>
<td>Conflict-generating species</td>
</tr>
<tr>
<td>Inconsequential species</td>
<td>Beneficial species</td>
</tr>
</tbody>
</table>
Biological invasions & industry

Challenges and trade-offs in the management of invasive alien trees

Brian W. van Wilgen · David M. Richardson

A

\[ \text{Acacia species} \]

\[ \begin{align*}
\text{Introduction} & \rightarrow \text{Net profit grows} \\
\text{Significant spread from planted areas begins} & \\
\text{Negative impacts exceed positive benefits} & \\
\text{Introduction of biological control} & \rightarrow \\
\text{Combined mechanical clearing} & \rightarrow \\
\text{?} & \\
\end{align*} \]

\begin{align*}
1860 & \rightarrow \text{Date} & 2010 \\
\end{align*}

B

\[ \text{Prosopis species} \]

\[ \begin{align*}
\text{Introduction} & \rightarrow \\
\text{Widespread hybridization} & \rightarrow \text{Options for biological control} \\
\text{Significant spread and demobilisation from planted areas begin} & \\
\text{Negative impacts predicted to exceed positive benefits} & \rightarrow \\
\end{align*} \]

\begin{align*}
1860 & \rightarrow \text{Date} & 2010 \\
\end{align*}

C

\[ \text{Pinus species} \]

\[ \begin{align*}
\text{Establishment of plantations brings value} & \rightarrow \text{Value of benefits exceeds negative impacts of limited invasion in summer-rainfall areas} & \rightarrow \\
\text{Cost of invasions exceeds value of plantation benefits in frosty uplands} & \rightarrow \\
\text{?} & \\
\end{align*} \]

\begin{align*}
1860 & \rightarrow \text{Date} & 2010 \\
\end{align*}

D

\[ \text{Eucalyptus species} \]

\[ \begin{align*}
\text{Establishment of plantations brings value} & \rightarrow \text{Value of benefits exceeds limited negative impacts for most species} & \rightarrow \\
\text{Aggressive invasion of riparian areas by E. camaldulensis} & \\
\text{Substantial impacts associated with E. camaldulensis masses for exceed limited benefits} & \\
\end{align*} \]

\begin{align*}
1860 & \rightarrow \text{Date} & 2010 \\
\end{align*}
Alien Bamboos: a threat or opportunity?
If you are interested in this research, have some input, comments please get in contact!

Thank you all

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References


