then adult populations will increase and it is quite feasible
that the spread of exotic forests will result in the return of
banded kokopu and an increase in whitebait.

However, one problem with this promising scenario
is the sensitivity of banded kokopu juveniles to turbidity.
Laboratory tank studies carried out by NIWA have
indicated that it is the most sensitive species. Migrant
juveniles avoid suspended sediment concentrations over
120 mg l\(^{-1}\) (turbidities of 20 Nephelometric Turbidity Units
or NTU) and turbidity levels over 20 NTU reduce their
feeding. Such levels are not particularly high and fall well
short of what most people would call slightly discoloured
water. Nevertheless, such levels occur in a number of New
Zealand rivers and may be inhibiting the upstream
movement of banded kokopu whitebait.

Proof of this was recently obtained by NIWA
scientists, who found that rivers that are turbid during
the fish migration season (August - December) contain
fewer adult banded kokopu than clear rivers. As the density
of adults in pristine habitat was low in the turbid rivers, it
appears that the turbidity in lower reaches inhibits the
upstream migrations of juveniles so that fewer migrants
reach adult habitats.

If plantation forestry is to play a role in helping to
restore whitebait fisheries, then forest managers will need
to be careful to minimise turbidity levels in streams during
the fish migration season. Carter Holt Harvey Forests has
helped fund the FRST research into the effects of turbidity
and land use on banded kokopu. The Company takes a
pro-active role in environmental management and realises
that more needs to be known about habitat quality in
streams and the positive and negative effects that forestry
practices might have on native fish such as the banded
kokopu.

Road construction and runoff from recently
harvested areas can contribute to turbidity problems in
streams unless handled carefully, and many forest
managers already work hard to prevent this from occurring.
Riparian strips may help reduce turbid runoff, and FRST
research is underway to determine the effects of riparian
strips on stream ecosystems. However, these efforts will
all be in vain if downstream sources of turbidity are not
reduced. In this respect, the farming industry will need to
be encouraged to do its share, because much turbidity in
the lower reaches of rivers is likely to be due to soil erosion
from pasture.

As turbidity levels will need to be low throughout
the entire banded kokopu migration pathway (i.e. from
river mouth to headwater stream), FRST funded research
is now being completed to determine the turbidity level
which inhibits the upstream migration rate of juvenile
banded kokopu in the wild. The results will then be
presented to industry and regulatory agencies to determine
how best to implement the findings on a river-wide basis.

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Forestry Books

The following is a list of books newly available or
becoming available.

**Forestry, People and Places: Selected Writing from Five
Decades. By Dennis Richardson.**

Business Media Services Ltd
Professor Richardson has collected his many and varied
writings in this special collection. The work includes
essays, papers and addresses prepared during a career
extending from the early days of modern forestry practice
to the jungle tribes of Irian Jaya, the islands of the Pacific,
and the highways and by-ways of European forestry. All
works written in Professor Richard's usual insightful and
readable style.

Price: $39.95
Business Media Services Ltd, PO Box 6215, Whakahoroerewa,
Rotura, New Zealand; Tel: (07) 349 4107; Fax: (07) 349
4157; email: bms@woe.co.nz

**The Business of Sustainable Forestry - Strategies for an
Industry in Transition**

By Michael B. Jenkins and Emily T. Smith; John D. and
Catherine T. MacArthur Foundation
Publisher: Island Press
A series of 21 case studies of industry leaders carried out
by the Sustainable Forestry Working Group is integrated
and analysed. The motivation of the pioneering firms
studied are as varied as their characteristics, yet each has
made significant progress.

Price: US$35.00
Available: Island Press
www.islandpress.org

**Atlas of Endemics of the Western Ghats (India)**

Distribution of Tree Species in the Evergreen and Semi-
evergreen Forests. B.R. Ramesh and J.P. Pascal. 1997, 403
p., maps, plates, CD Rom listing images, maps, US$70
(inclusive of CD ROM) (net. Inclusive of registered airmail
postage and packing).
http://www.vedamsbooks.com
Available from the UNFAO Regional Office for Asia and the
Pacific, Bangkok, Thailand:

**Code of Practice for Forest Harvesting in Asia Pacific.**
1999, 133 pages. An excellent reference, broad in scope
yet sufficiently detailed with respect to field applications
that can be applied throughout most of the region to
enhance forest management.

**Asia-Pacific Forestry Towards 2010.**
242 pages. The report of the Asia-Pacific Forestry Sector Outlook Study.
The study considers the status, trends and prospects for
the forestry sector to 2010.
Both reports available from Patrick Durst, Regional Forestry
Office, FAO Regional Office for Asia and the Pacific. Phone:
(66-2) 281 7844; Fax: (66-2) 280 0445; email:
patrick.durst@fao.org

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