CHAPTER 6

GOALS & OBJECTIVES

MONICA PETERS AND BEVERLEY CLARKSON

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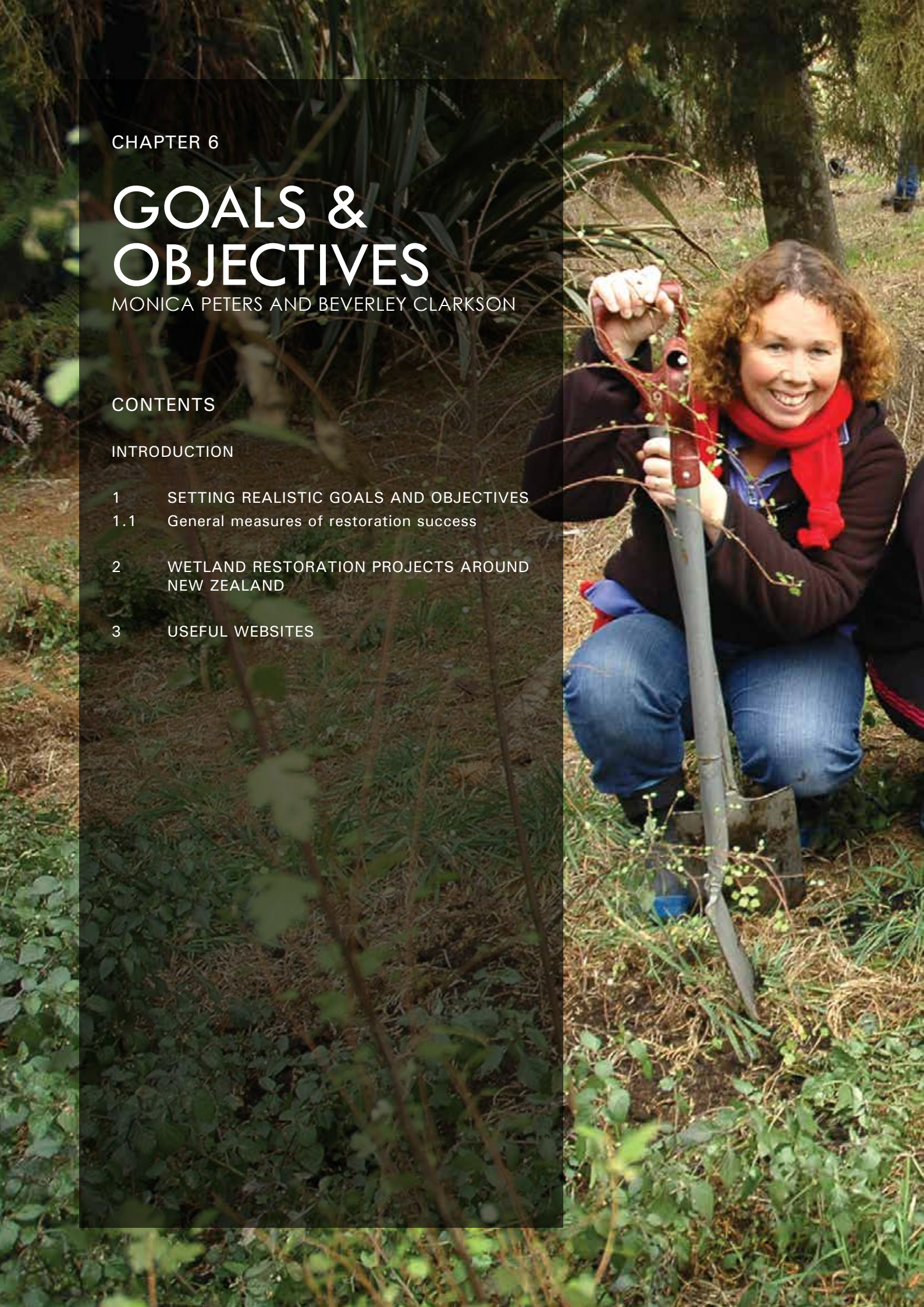

GOALS & OBJECTIVES

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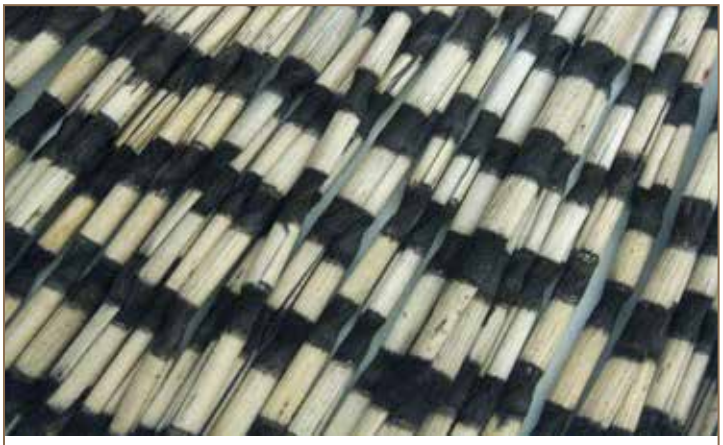
Goals are general statements about desired project outcomes and, as such, a goal is a vision of what you want the wetland to be in a given time frame. Clear goals and specific objectives linked to them will help you explain to other people, including potential funders, partners (e.g., Regional and District Councils, Department of Conservation, iwi) and the local community, what you are aiming to achieve. In the process, having a clear picture of what you are aiming for will assist with preparing strong funding proposals as well as inspiring new volunteers to join the project.

Defining your goals (e.g., to replace an area dominated by introduced plants with appropriate native plants), objectives and the time frames you want to achieve them in (e.g., remove 30% of willow in the area by the end of Yr 1) are integral to developing a strong monitoring programme. A monitoring programme will enable you to determine the overall success of the restoration as well as guide ongoing site management. To cement the links between goal and objective setting, and developing a monitoring programme a brief section on ecological measures of restoration success is included in this chapter.

Previous page: Planting day at Lake Serpentine, Waikato.
Photo: Abby Davidson, NZ Landcare Trust

Banded kokopu are one of the endemic species – many of which are threatened – that make our wetlands and waterways unique.
Photo: Stephen Moore, Landcare Research



An example of a goal may be to improve native plant and animal populations, enable sustainable harvesting of food, medicine and fibre (e.g., the piupiu pictured). Photo: Monica Peters, NZ Landcare Trust

Two major fires in recent years have been a management challenge for the Friends of the Mangarakau Swamp that reshaped the group's restoration goals and objectives.
Photo: Monica Peters, NZ Landcare Trust

1 Setting realistic goals and objectives

The achievability of the wetland restoration project will depend on a number of factors such as the size and scale of the project, how much the wetland has changed compared with the original extent and condition, and what funding and labour are available. If the wetland has been highly modified, e.g., altered water regime, impaired connectivity, or dissected into fragmented remnants, then realistic goals may, at least originally, centre on removal of weeds and planting native species in a small, more manageable portion of the wetland. Specific restoration actions can be undertaken in achievable steps along the path to the overall restoration. Some actions, however, may not be possible or practical, such as restoring connections and buffers in the middle of urban areas.

Setting goals and objectives can be an iterative process, just as the management of your restoration site will adapt over time in response to restoration progress, or unexpected events such as fires or floods. Your goals and objectives can be refined for example as you learn more about your wetland or as unexpected events take place such as a fire, or if you receive further funding. Many restoration projects will have a range of goals and objectives, as is demonstrated by the project examples and case study included in this chapter.

Raising awareness of wetland values as a component of wetland restoration at Battle Creek Farm Park, Wellington.
Photo: Monica Peters, NZ Landcare Trust

1.1 General measures of restoration success

Most wetland restoration projects' primary goal is to restore the wetland as a relatively self-sustaining ecosystem with natural values representative of those existing before major modification.

General measures of restoration success	
1	For each habitat/ecosystem type: • Plantings are appropriate • The majority of plantings survive to maturity • There is recruitment of new individuals into the population (habitat/ecosystem type becomes self-sustaining) • Weed problems have decreased
2	There is an increase in the frequency of native bird visits and residency
3	Key processes are restored to within their range of natural variability: • Water levels are restored similar to previous levels • Vegetation is dominated by native species • Nutrient enrichment is mitigated • Accidental or deliberate fires no longer occur
4	Vertebrate pests are controlled
5	Overall biodiversity/ ecological values have increased

Further examples of setting goals and objectives are included in Chapters 7–12, (Hydrology, Nutrients, Weeds, Revegetation, Pests, Native Fauna) and Chapter 13 – Monitoring.

"SMART" GOALS AND OBJECTIVES

The "SMART" principles provide a useful framework for developing a set of goals and objectives for your wetland restoration project. They should be:

- SPECIFIC
- MEASURABLE
- ACHIEVABLE
- REALISTIC
- TIME-BOUND

Measuring restoration progress: strong goals and objectives are needed for developing monitoring programmes.
Photo: Danny Thornburrow, Landcare Research

Both photos show the same wetland – this end has been severely impacted by vegetation clearance, drainage, with stock trampling and weed incursion. Hangitiki, Waikato.
Photo: Monica Peters, NZ Landcare Trust

The other end of the Hangitiki wetland (a Department of Conservation Reserve) is in very good condition and provides a valuable reference site for any future restoration of nearby wetlands. Photo: Monica Peters, NZ Landcare Trust

CASE STUDY

RESTORING PATAUA NORTH: A CLEAR GOAL AND STRONG OBJECTIVES

The privately owned Tahi (from the original Ohuatahi – "First place of plenty") is a 300 ha farm at Pataua North (Northland). The two largest wetlands on the property include a former dune lake and a freshwater to marine wetland abutting the Pataua Estuary. Drainage works and over a century of grazing – first dairy and then beef cattle – have severely impacted all remaining wetland areas. The current owners (two of whom are ecologists) bought the property in 2004 and have since been actively retiring and restoring the wetlands.

Restoration goals

The overarching goal for the property with its wetlands, forested areas and coastline is to preserve both the ecological and the cultural heritage of the land, while providing a sanctuary for people, fauna and wildlife. Maximising native biodiversity – mainly birds but also fish and wetland plants, is the goal for the wetland restoration in general.

Objectives

Objectives for the 13 wetlands now in the process of restoration:

- Maximise faunal diversity (predominantly birds) through a diversity of water depths and plant associations
- Sustain ground water levels

Objectives for the first wetland to be restored:

- To provide year round water

Objectives for the dune wetland:

- Reflood part of a former dune lake system
- Enhance water quality flowing to the beach

Restoration works

Mercer grass and pampas are being controlled with glyphosate. Cattle were removed from the total catchment of the estuarine wetland in 2007 with 50:25:25 funding (DOC Biodiversity Fund, Northland Regional Council (NRC) Environment Fund and landowner contribution). The one-way gate on the drain into the estuary was also removed. The same 50:25:25 funding was used in 2006 to initiate restoration of the former dune lake. Along with fencing, a 0.8-m weir was put into the outlet drain to retain water and some areas of pasture were dug out to provide deeper water. Riparian margins were planted with a mix of native shrubs and trees. All cattle have now been removed from the surrounding paddocks and the neighbouring section has also been fenced. Planting continues on both properties.

Results

Bird numbers have increased. Full pest control now extends across all neighbouring properties through NRC's Community Pest Control Scheme. Fernbird have expanded their range, bittern, 3 shag species, ducks and pied stilt are now common residents, and grey teal and dabchick have made their first appearance. Liaison with the Brown Teal Recovery Group has the properties listed for future reintroduction. Tui have increased markedly in areas with flax.

What next?

Many wetland areas remain smothered in rank kikuyu. Some areas will be planted with kahikatea or flax, some will be partly flooded by constructing small dams and blocking drains. Extensive planting of steeper areas in all catchments will also continue. Infill planting with kahikatea will continue in the more exposed wetlands as the other plantings mature. Nest boxes will be added for grey teal and nest structures for welcome swallow are being trialled.

– John Craig

REF: www.tahinz.com/sustainability.html

The old dune lake after a major rain event and before damming for restoring wetland flora and fauna. One of the objectives here is to improve water quality flowing to the beach. Photo: John Craig

Wetland planting maturing. The results are promising: grey teal, NZ dabchick and NZ shoveller bred here for the first time in 2009. Brown teal arrived in the same year by themselves. Photo: John Craig

The first wetland in the process of restoration and enhancement. (Year 1) Photo: John Craig

The same wetland three years later. Keeping the wetland wet in a very dry landscape is a challenge and therefore a key objective.
Photo: John Craig

The eleventh wetland in the process of restoration and enhancement. (Year 3) Photo: John Craig

The same wetland five years later. Photo: John Craig

2 Wetland restoration projects around New Zealand

Wetland restoration takes many forms. The goals of the following projects highlight the diverse motivations – cultural, ecological, economic, social, recreational and aesthetic – which shape wetland restoration in the New Zealand landscape.

COMMUNITY GROUP PROJECT, HULLS CREEK, WELLINGTON

"Protect banks from erosion during flooding and improve water quality and flow. Reintroduce native fish fauna by constructing a fish ladder at junction with Hutt River. Construct a bush walk below the stream railway."

LAKE CAMERON CARE GROUP, WAIKATO

"Improve water quality, enhance views, improve access to and around lake. Maintain duck shooting and maimais, plant trees to attract native birds. Manage plant and animal pests, enhance species diversity and the educational potential of lake."

LAKE ROTOKARE TRUST, TARANAKI

"Build and maintain an 8.4-km totally pest-proof fence around Rotokare Scenic Reserve, eradicate all mammalian animal pests and reintroduce threatened species (including kiwi, kokako, takahe, and tuatara). Develop visitor infrastructure (access gates and tracks), provide guided tours and 'ecological experiences' for visitors, including nocturnal 'kiwi-listening' cruises on the lake. Establish an education facility for school groups, visitors and researchers, and develop a successful business capable of sustaining the operating costs of the whole project area into the future."

FISH & GAME NZ, SOUTHLAND

"Re-create suitable habitat to benefit whitebait (Inanga) and other native fish populations and whitebait fishery as the reduced flows of the Waiau River and land development of the low lying tidal areas of land have dramatically reduced spawning and rearing habitats."

LANDCARE RESEARCH FRST-FUNDED WETLAND PROGRAMME

"Provide scientifically based guidelines, techniques, and tools as input into effective management and restoration strategies in wetlands that are most threatened."

PRIVATE FARM WETLAND RESTORATION PROJECT, BANKS PENINSULAR

"Return the present practically bare paddock to its original status when it was covered in native bush and wetland species."

DEPARTMENT OF CONSERVATION ARAWAI KAKARIKI RESTORATION PROGRAMME

Whangamarino, Waikato; O Tu Wharekai, Canterbury; Awarua-Waituna, Southland

Biodiversity

- Maintain or enhance the extent of wetland habitat
- Maintain and enhance water regime and water quality to support wetland values
- Protect intact wetland habitat and restore degraded wetland habitat
- Maintain and enhance species diversity, including threatened species

Community and Cultural

- Conserve and interpret important historic and cultural sites
- Promote sustainable catchment management
- Improve facilities and recreation opportunities for public
- Maximise community awareness, appreciation and involvement

Learning and Development

- Support research that improves wetland management
- Support the development of best practice management and monitoring

NZ LANDCARE TRUST, WAIKATO

"Recreate 2 areas of rare restiad wetlands in the Waikato trialling a range of best practice techniques. Monitor plant growth and establishment over a 5-year period or until 100% restiad cover has been achieved."

Before restiad wetland re-creation...

Adding restiads and other plant species... digitally to begin with.

What a recreated wetland might look like!
Image: Monica Peters, NZ Landcare Trust

Wetlands, waterways and whitebait go hand-in-hand.
Photo: Peter Hamill, Marlborough District Council

What is now wetland was once farmland. The overall goal for Otipua was to bring the wetland back. Otaki, Wellington.
Photo: Monica Peters, NZ Landcare Trust

3 Useful websites

Wetland restoration templates

Waikato Regional Council Wetland Restoration Plan templates

www.waikatoregion.govt.nz/PageFiles/5799/Wetlandtemplate1.pdf

www.waikatoregion.govt.nz/PageFiles/5799/Wetlandtemplate2.pdf

Wetland restoration guides and factsheets (New Zealand)

Northland Regional Council

www.nrc.govt.nz/upload/2217/Wetland%20Restoration%20Guide%20(second%20edition%20Feb%2009).pdf

Auckland Regional Council

www.arc.govt.nz/albany/fms/main/Documents/Environment/Plants%20and%20animals/wetlandsfacts2.pdf

Waikato Regional Council

www.waikatoregion.govt.nz/Environment/Natural-resources/Water/Freshwater-wetlands/

Hamilton City Council

www.gullyguide.co.nz/index.asp?pageID=2145821537

Bay of Plenty Wetlands Forum

www.doc.govt.nz/upload/documents/conservation/land-and-freshwater/wetlands/wetland-restoration-guide.pdf

Greater Wellington

www.gw.govt.nz/a-beginner-s-guide-to-wetland-restoration/

Department of Conservation Protecting Natural Areas Design Guide

www.doc.govt.nz/publications/getting-involved/volunteer-join-or-start-a-project/start-or-fund-a-project-/nature-heritage-fund/protecting-natural-areas-design-guide/

Wetland restoration guides (International)

USA Environmental Protection Agency

www.epa.gov/owow/wetlands/pdf/restdocfinal.pdf

Note that many of the resources above are available as hard copy from the respective organisations. There is also a CD containing all above hyperlinks at the back of this Handbook. If you are using the online version of the Handbook and having problems with the hyperlinks above, try copying and pasting the web address into your browser search bar.