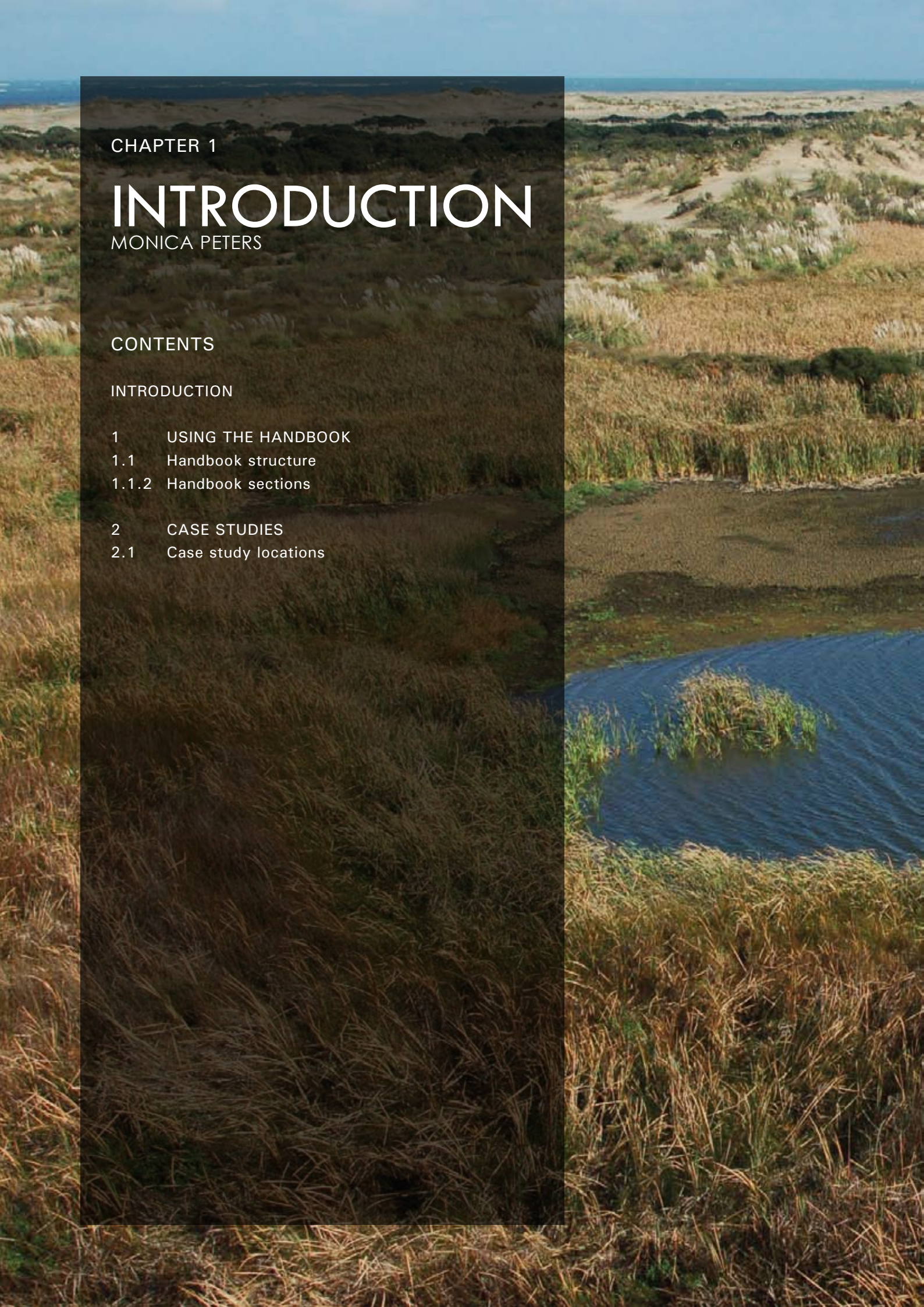

CHAPTER 1

INTRODUCTION

MONICA PETERS

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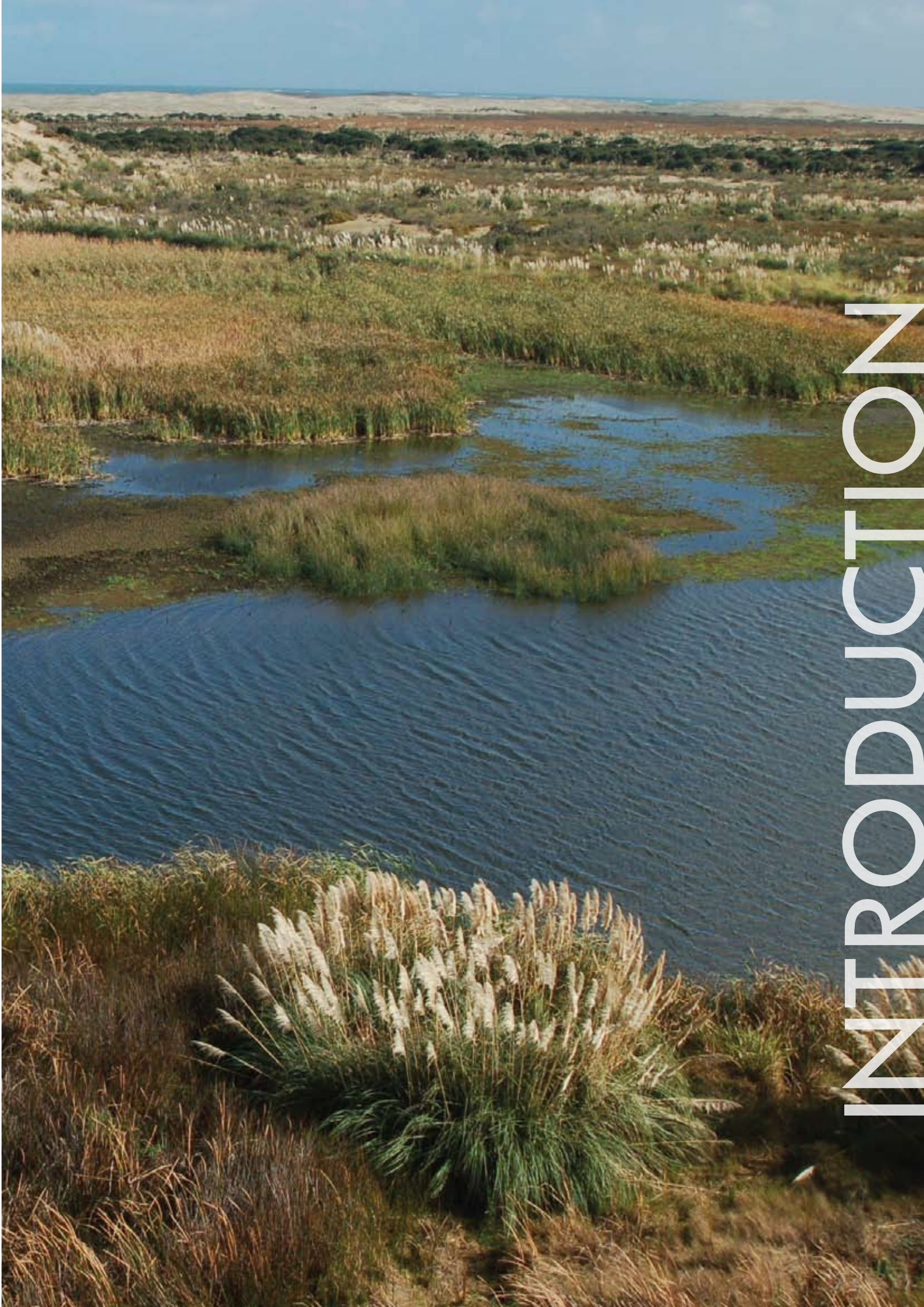


INTRODUCTION

INTRODUCTION

MONICA PETERS

A wetland is literally a "wet" land where surface water collects or where underground water seeps through to the surface. The term "wetland" is used broadly and covers an extremely diverse range of environments including swamps, bogs, salt marshes, lakes and some river edges. The Resource Management Act (1991) definition of a wetland is broad and includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.

Wetland loss country-wide over the last 150 years is calculated at a staggering 90%. Most of our major cities are built on wetlands – estuaries have been reclaimed and inland areas heavily drained to support a growing, land-hungry population. Wetland loss still continues today despite a greater acknowledgement and understanding of the important ecosystem services they provide along with their economic, cultural, environmental and recreational values. To address this loss, restoration projects are underway from Northland to Southland, spearheaded by forward-thinking individuals, community groups, schools, agency land managers, iwi, non-government organisations and ecologists. The objectives vary between projects but the overall goal is clear: to return degraded wetlands back to what they once were – healthy, living ecosystems. Wetland Restoration: A Handbook for New Zealand Freshwater Systems is designed to help achieve this goal.

Previous page: Lake Matthews, Northland.
Photo: Danny Thornburrow, Landcare Research

In as little as 150 years, 90% of our wetlands have been destroyed – primarily drained to create farmland, towns and cities.
Photo: Abby Davidson, NZ Landcare Trust

Many of the species associated with New Zealand wetlands are both unique and highly threatened. Canterbury mudfish.
Photo: Sjaan Charteris. Crown Copyright, Department of Conservation

With one of the highest rates of wetland loss in the world, conserving what remains is critical. Whatipu, Auckland.
Photo: Monica Peters, NZ Landcare Trust

1 Using the handbook

The Handbook describes how to restore ecosystem function in naturally occurring wetlands for long-term sustainable outcomes. Not included are the restoration of estuarine environments (such as salt marshes) and the development of constructed wetlands (such as duck ponds and sewerage treatment wetlands).

Although a range of valuable wetland restoration guides and fact sheets have been produced in different regions (e.g., Northland, Auckland, Waikato, Bay of Plenty, Wellington and Southland), the difference between these and the Handbook lies in the level of detail. Wetland Restoration: A Handbook for New Zealand Freshwater Systems is comprehensive and will help guide new projects as well as provide additional useful information for projects already under way.

1.2 Handbook structure

The Handbook is divided into three sections to highlight the key phases of restoring a wetland. Individual chapters in each section cover a key aspect of restoration from planning, to implementation, to monitoring and protecting the restored wetland. Case studies are presented throughout and provide practical examples of the main principles covered in each of the chapters. References and further reading, along with useful websites are included at the end of each chapter.

A CD inside the back cover contains a PDF of all text references and weblinks used within the Handbook.

YOU DON'T HAVE TO BE AN EXPERT!

"Many landowners may be hesitant about embarking upon a restoration and management programme, fearing that an in-depth knowledge of botany and ecology is required. While people with this knowledge will have a head start, it is not a prerequisite for good management. Local knowledge, a keen eye for detail, talking to others involved in managing similar areas, and commitment are the most important requirements."

– Tim Porteous, Native Forest Restoration, 1993

1.1.2 Handbook sections

SECTION ONE

BEGINNING A WETLAND RESTORATION PROJECT

Learn how to:

- determine which type of wetland or wetlands you have
- plan your restoration effectively from the start
- set achievable goals and objectives
- carry out various investigations to learn more about your restoration site

Extensive networks of drains were hand dug in the Waikato, turning swampland into productive pastures. Photo: Waipa District Council

SECTION TWO

ACTION ON THE GROUND

Learn about the:

- basic principles of wetland hydrology, how to carry out basic modifications to benefit your restoration site and how to monitor the results
- role of nutrients in wetland restoration and how to manage and monitor nutrient levels
- key threats weeds pose to wetlands, control methods and how to monitor the results of weed control
- basic principles of planning and carrying out wetland revegetation using native plants and how to monitor plant establishment
- key threats pests pose to wetlands, control methods and how to monitor changes in pest species populations
- basic principles of creating the right habitat to encourage the return of native fauna/prepare for species translocations, and how to monitor changes in native fauna populations

SECTION THREE

MEASURING RESULTS & WETLAND PROTECTION

Learn how to:

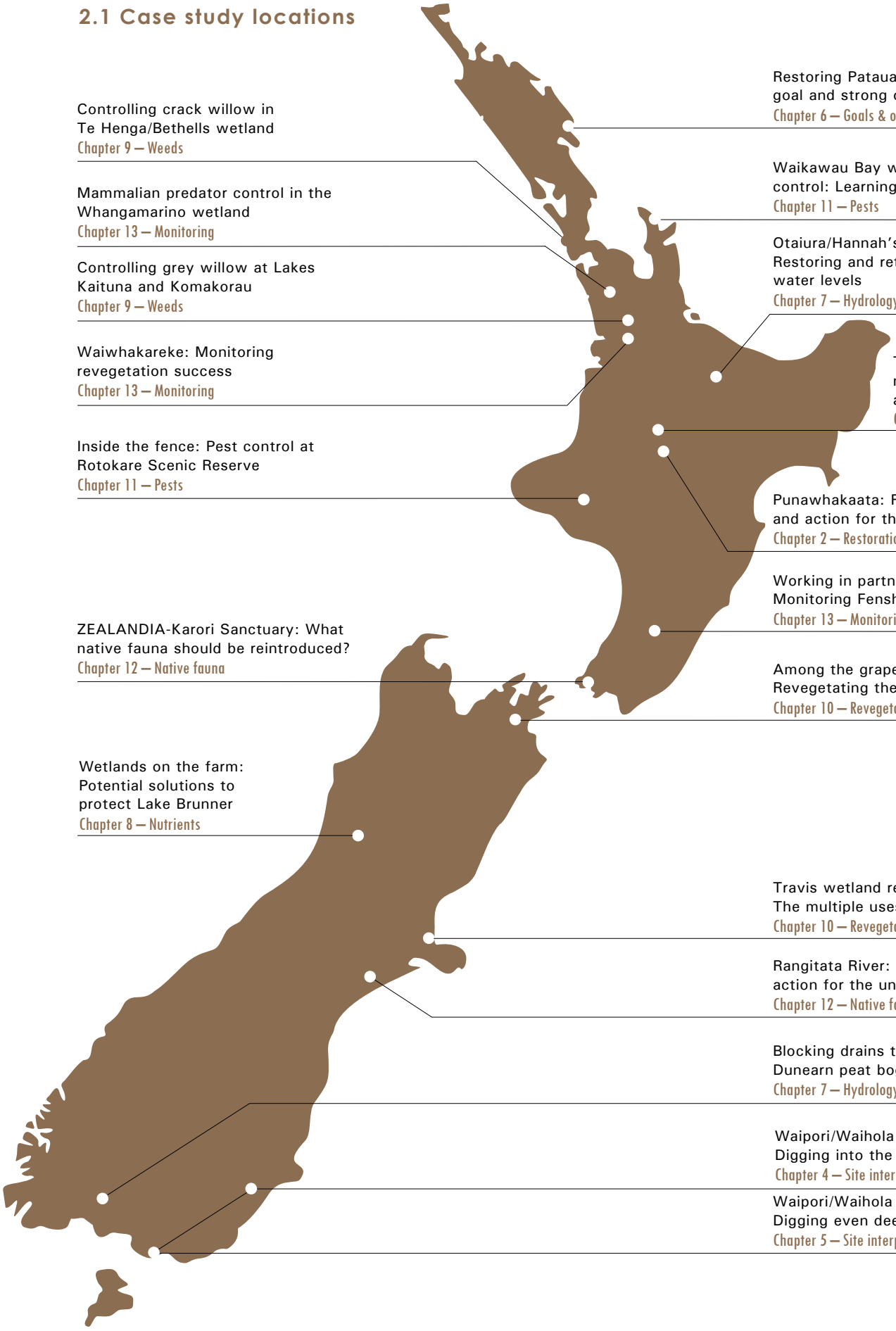
- collate the monitoring results from Action on the ground chapters in order to monitor key changes in wetland condition
- choose and use the mechanisms available to protect your wetland restoration project

2 CASE STUDIES

Stories about our relationship to the land form part of our culture and identity. The case studies featured throughout the Handbook provide insights into wetland restoration. From Northland to Southland, farmers, scientists, iwi, community and agency groups share their valuable experiences of turning wasteland back to wetland. Some of the projects featured are large and will continue for decades, while others are much smaller, achieving their main goals in just a few years. Each case study is a short story about how a technical aspect of restoring a freshwater wetland has been translated into practical action.

Kaumatua George Flavell (Ngati Te Ata) shares his knowledge of the rich pre-colonial history of the once extensive wetlands around Lake Kohekohe and the surrounding landscape. Awhitu, Auckland.
Photo: Anna White, Awhitu Peninsular Landcare Incorporated

2.1 Case study locations



Restoring Pataua North: A clear goal and strong objectives
Chapter 6 — Goals & objectives

Controlling crack willow in Te Henga/Bethells wetland
Chapter 9 — Weeds

Waikawau Bay wetland pest control: Learning by doing
Chapter 11 — Pests

Mammalian predator control in the Whangamarino wetland
Chapter 13 — Monitoring

Otaiura/Hannah's Bay wetland: Restoring and retaining higher water levels
Chapter 7 — Hydrology

Controlling grey willow at Lakes Kaituna and Komakorau
Chapter 9 — Weeds

Waiwhakareke: Monitoring revegetation success
Chapter 13 — Monitoring

Tutaeuaua: Measuring nitrate removal within a natural wetland
Chapter 8 — Nutrients

Inside the fence: Pest control at Rotokare Scenic Reserve
Chapter 11 — Pests

Punawhakaata: Restoration planning and action for the mirror springs
Chapter 2 — Restoration planning

Working in partnership: Monitoring Fensham wetland
Chapter 13 — Monitoring

ZEALANDIA-Karori Sanctuary: What native fauna should be reintroduced?
Chapter 12 — Native fauna

Among the grapevines: Revegetating the Rapaura Wetland
Chapter 10 — Revegetation

Wetlands on the farm: Potential solutions to protect Lake Brunner
Chapter 8 — Nutrients

Travis wetland restoration: The multiple uses of native plants
Chapter 10 — Revegetation

Rangitata River: Conservation action for the unique wrybill
Chapter 12 — Native fauna

Blocking drains to re-wet the Dunearn peat bog
Chapter 7 — Hydrology

Waipori/Waihola and Waituna wetlands: Digging into the past
Chapter 4 — Site interpretation 1

Waipori/Waihola and Waituna wetlands: Digging even deeper into the past
Chapter 5 — Site interpretation 2