

**SAVING NEW ZEALAND'S BIRDS**  
**Educational Unit**  
**By Maria Gill**



## SAVING NEW ZEALAND'S BIRDS

YEARS	LEVELS	DURATION
3-7	2-5	4-8 weeks
<b>CARING FOR OUR NATIVES ACHIEVEMENT OBJECTIVE</b>		
<p><b>Science – Living World – Life Processes</b></p> <ul style="list-style-type: none"> <li>Recognise that all living things have certain requirements so they can stay alive. L2</li> </ul> <p><b>Social Sciences</b></p> <ul style="list-style-type: none"> <li>Understand that events have causes and effects. L4</li> <li>Understand how people’s management of resources affects environmental and social sustainability. L5</li> </ul>	<p><b>Science – Living World – Ecology</b></p> <ul style="list-style-type: none"> <li>Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced. L3-4</li> <li>Investigate the interdependence of living things including humans in an ecosystem. L5</li> </ul>	
<p><b>Key Competencies</b> Students will utilize the key competency skills in a range of activities:</p> <ul style="list-style-type: none"> <li>Managing self</li> <li>Relating to others</li> <li>Participating and contributing</li> <li>Thinking skills</li> <li>Using language, symbols and texts</li> </ul>	<p><b>Education for Sustainability</b></p> <ul style="list-style-type: none"> <li>Students practice environmental project-based learning involving students in local projects that are meaningful and make real contributions to their communities</li> <li>Aim to improve the environment</li> <li>Change students behaviour, attitudes and values towards the environment</li> </ul>	
<b>TEACHING AND LEARNING ACTIVITIES</b>		
#	LEARNING ACTIVITIES	LEARNING INTENTIONS
1	What is a native bird?	Prior Knowledge, Defining
2	Why are some birds endangered?	Thinking skills, investigating, summarizing
3	How have birds adapted?	Comprehension, Knowledge
4	What endangers New Zealand birds?	Thinking Skills, matching, problem solving
5	What is human’s impact on NZ birds?	Role Playing, understanding the main idea, Synthesizing
6	What is being done to save our birds?	Comprehension, investigation, matching
7-8	Inquiry Investigation	Notetaking, researching, reporting
9+	So What, What Now	Application, meaningful contributions
	Learning Centre	Thinking skills, constructing, investigating, synthesizing
<b>I N D E X</b>		
PAGE		
2	Introduction	
3	Achievement Objectives, Teaching and Learning Activities	
4 – 9	Learning Activities	
10	Inquiry Investigation	
11	Community Action	
12	Learning Centre	
13 – 20	Appendixes 1- 7	
21	List of Resources	

Lesson # 1	Science – Living World Life Processes	Recognising that all living things have certain requirements so they can stay alive.	What is a Native bird?
<p><b>Learning Intention</b></p> <ul style="list-style-type: none"> <li>Students know the difference between an introduced and native bird.</li> <li>Can define ‘endemic’</li> </ul>		<p><b>Vocabulary</b></p> <ul style="list-style-type: none"> <li>Native</li> <li>Introduced</li> <li>Indigenous</li> <li>Conservation</li> </ul>	
<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>What I know Now: What I know After Instruct students to fold their A3 paper in half so it makes an A4 booklet. Students write their name, title of project ‘Caring for our Birds’ and today’s date. Students draw a box that fills half the page, and a circle that fills the other half of page. In the box, tell the students to draw a native bird and label its parts. In the circle, students brainstorm all they know about New Zealand birds. At the end of unit, students will do exercise again (on back page) so you can see prior knowledge and what they know after doing unit. (This booklet also acts as a folder for all their work.)</li> <li>Students share what they have written in brainstorm and teacher writes it up as classroom brainstorm for ‘New Zealand birds’.</li> </ul>		<p><b>Resources</b></p> <p>A3 paper for every class member Felt pens Pen Venn diagram drawn on blackboard and students copy or photocopied.</p>	
<p><b>Learning Activities</b></p> <ul style="list-style-type: none"> <li>As a class, discuss the difference between introduced and native birds.</li> <li>In pairs, students write a Venn diagram or double bubble map showing similarities and differences between introduced and native birds. Teacher can encourage students with these prompts: where do they come from, what are their survival strategies, name some birds. Prompts for the converged space: what do all birds have in common?</li> <li>Students share their answers.</li> </ul>		<p><b>Curriculum Links</b></p> <p><b>English</b> Students write an acrostic poem on ‘native birds’ or bird of their choosing.</p> <p><b>Art</b> Students learn to draw a native bird. See ‘Drawing New Zealand Birds’ by Heather Arnold.</p> <p><b>Science</b> Place mixed wild birdseed, nuts, fruit on a bird feeder outside classroom and students identify bird type (native, introduced) in a log.</p>	
<p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>Students write a vocabulary word map on ‘endemic’ birds.</li> </ul>			
<p><b>Success Criteria</b></p> <ul style="list-style-type: none"> <li>Prior knowledge responses (before &amp; after)</li> <li>Show the differences and similarities in Venn diagram</li> <li>Can define ‘endemic’ and give examples</li> </ul>			
<p><b>Website Links</b></p> <p>Venn diagram master: <a href="http://www.readingquest.org/pdf/venn2.pdf">www.readingquest.org/pdf/venn2.pdf</a> See ‘bird feeder’ project in <a href="http://www.wildeducation.org">www.wildeducation.org</a> site, page 8 in ‘Give Backyard birds something to sing about’. Get a ‘Word Map’ version 2 master on <a href="http://www.readingquest.org">www.readingquest.org</a></p>			

Lesson # 2	Social Sciences	Understand how people's management of resources affects environmental and social sustainability	Why are some birds endangered?
<b>Learning Intention</b> <ul style="list-style-type: none"> <li>Students define 'endangered' and list some examples.</li> <li>Students will be able to infer information and summarise article.</li> </ul>			<b>Vocabulary</b> <ul style="list-style-type: none"> <li>Endangered</li> <li>Endemic</li> <li>Gondwana</li> </ul>
<b>Introduction</b> <ul style="list-style-type: none"> <li>Students write a Definition map on 'endangered birds' – see <b>Appendix 1</b> for master.</li> <li>Class discussion on why we have endangered birds in New Zealand.</li> </ul>			<b>Resources</b> Article printed on OHP or photocopied. Use of computer
<b>Learning Activities</b> <ul style="list-style-type: none"> <li>Read article 'Cast Adrift with its own ark of unusual animals', <b>Appendix 2</b></li> <li>Think-pair-share these questions one at a time:                Why did New Zealand have no land mammals?                Why did humans bring animals to New Zealand?                Why did it endanger so many of our birds?</li> <li>In pairs, students write a 3-2-1 chart.                3 Things they found out                2 Interesting things                1 Question they still have.</li> </ul>			<b>Curriculum Links</b>  <b>Art</b> Students draw a picture of an imaginary bird that could have existed in New Zealand, which has animal characteristics.
<b>Conclusion</b> Students search on the internet, the answer to the question from the 3-2-1 chart.			<b>Science</b> Defining endangered and extinct using a post-box activity from "Biodiversity in New Zealand Wildlife"
<b>Success Criteria</b> <ul style="list-style-type: none"> <li>Observe students working co-operatively in pairs.</li> <li>Use the students' definitions, sharing, and questions to ascertain whether they understand why New Zealand's birds are endangered.</li> </ul>			<b>English</b> Play the 'Biodiversity Guess the Word' game from Biodiversity in New Zealand wildlife education unit.
<b>Website Links</b> Instructions for 'Think-pair-share' on <a href="http://olc.spsd.sk.ca/DE/PD/instr/strats/think/">http://olc.spsd.sk.ca/DE/PD/instr/strats/think/</a> Instructions for '3-2-1' chart <a href="http://www.readingquest.org/strat/321.html">http://www.readingquest.org/strat/321.html</a> 'Biodiversity in New Zealand wildlife' on <a href="http://www.tki.org.nz/r/environ_ed/primary_units/endangered_e.php">http://www.tki.org.nz/r/environ_ed/primary_units/endangered_e.php</a> Article on why so many birds are flightless in New Zealand: <a href="http://www.teara.govt.nz/TheBush/NativeBirdsAndBats/LandBirdsOverview/3/en">www.teara.govt.nz/TheBush/NativeBirdsAndBats/LandBirdsOverview/3/en</a>			

Lesson # 3	Science – Living World Living Processes	Recognise that all living things have certain requirements so they can stay alive.	How have Native birds adapted?
<b>Learning Intention</b> <ul style="list-style-type: none"> <li>Students will identify the senses of predators and prey.</li> <li>Students will understand that birds have adaptations to help them survive but New Zealand birds haven't had time to adapt to mammals therefore are vulnerable to these predators.</li> </ul>			<b>Vocabulary</b> <ul style="list-style-type: none"> <li>Adaptations</li> <li>Predators</li> <li>Prey</li> <li>Survival tactics</li> <li>Binocular vision</li> </ul>
<b>Introduction</b> <ul style="list-style-type: none"> <li>Brainstorm what senses and survival tactics birds use to survive.</li> </ul>			
<b>Learning Activities</b> <ul style="list-style-type: none"> <li>Introduce the book 'Bird's-eye View: Through the eyes of New Zealand Birds'. Read one of the pages to the students. For example, if you read the 'kiwi' page, ask the students, 'what senses does kiwi use to survive'. Tick a 'Senses' grid (on whiteboard). Show how the kiwi has its eyes on the side of its head so it has a wide vision, while a predator like the owl has its eyes on the front of its face. Predators have eyes in the front of their face so they can judge distance accurately when catching prey.</li> <li>In pairs, students to do a 'Senses' grid on another bird.</li> <li>Talk to class, about how the senses and survival tactics of some birds do not help them when faced with animal predators. Discuss why this would be. For example, a bird like the New Zealand snipe stays very still and hopes its predator will not see where it is. However, animals that hunt using their sense of smell like stoats will smell where they are and find them. This is a bird that has not yet adapted to animal predation in New Zealand and because of that is now not on mainland.</li> </ul>			<b>Resources</b> 'Bird's-eye View' book Senses grid on whiteboard. Teaching resource: 'Birds Structure, Function, Adaptation Building Science Concepts' MOE  <b>Curriculum Links</b>  <b>English</b> Read other Tui Time articles and activities. <b>Science</b> Students make card glasses with blue or red cellophane in them. Look outside – how does the blue change the view? Change to red cellophane – how does the red change the view. Birds that fly over the sea/desert/high need the filter to cut out glare of sun. Birds that fly in green environments need red filters to find food. <b>Field Trip</b> Go to a bird sanctuary or reserve and observe birds.
<b>Conclusion</b> <ul style="list-style-type: none"> <li>Students read 'Fitting In' and fill out questionnaire in 'print and copy' activities.</li> </ul>			
<b>Success Criteria</b> <ul style="list-style-type: none"> <li>Sense grid, discussion and questionnaire responses.</li> <li>Students participation in class discussions.</li> </ul>			
<b>Website Links</b> 'Fitting In' article and quiz on: <a href="http://www.tuitime.org.nz/activities/tests/t6_fitting_in.htm">http://www.tuitime.org.nz/activities/tests/t6_fitting_in.htm</a> Fitting In print and copy activities on: <a href="http://www.tuitime.org.nz/activities/index.htm#Tiaki's%20Quiz%20List">www.tuitime.org.nz/activities/index.htm#Tiaki's%20Quiz%20List</a> Observation sheets: <a href="http://www.wildeducation.org">www.wildeducation.org</a> see Backyard birds, page 6			

**EXAMPLE OF 'SENSES' GRID**

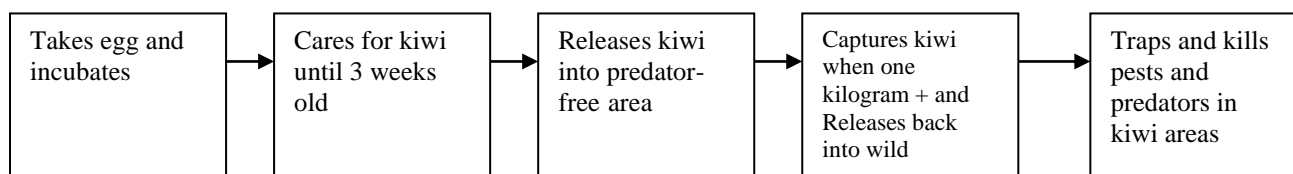
BIRD	Sense of hearing	Sense of sight	Sense of touch	Sense of smell	Other survival tactics	Chance of survival
Kiwi	Excellent	poor	Excellent	Excellent	Camouflage Feels vibrations Runs	Only survives if it can outrun predator

Lesson # 4	Social Sciences	Understand that events have causes and effects	What endangers New Zealand's birds?
<b>Learning Intention</b> <ul style="list-style-type: none"> <li>• can identify pests and predators in New Zealand</li> <li>• understands human's impact on the environment</li> </ul>			<b>Vocabulary</b> <ul style="list-style-type: none"> <li>• Pests</li> <li>• Predators</li> <li>• Mustelids</li> <li>• Introduced pests</li> </ul>
<b>Introduction</b> <ul style="list-style-type: none"> <li>• Brainstorm the problems birds have to face in New Zealand: pests, predators and human impact.</li> </ul>			
<b>Learning Activities</b> <ul style="list-style-type: none"> <li>• In groups, students 'Power Think' this issue:               <ol style="list-style-type: none"> <li>1. What endangers New Zealand's birds? (Example follows)                   <ol style="list-style-type: none"> <li>2. Pests                       <ol style="list-style-type: none"> <li>3. rodents</li> <li>3. deer</li> <li>3. pigs</li> </ol> </li> <li>2. Predators                       <ol style="list-style-type: none"> <li>3. mustelids</li> <li>3. possums</li> <li>3. cats and dogs</li> </ol> </li> <li>2. Human impact                       <ol style="list-style-type: none"> <li>3. clearance of forests</li> <li>3. by-catch of commercial fishing</li> <li>3. introduced pests and predators into NZ</li> </ol> </li> </ol> </li> <li>• Matching Activity – see <b>Appendix 3</b> for master. Cut up the squares and hand a picture or text to students. Students walk around trying to find their match. Alternatively, play it in pairs, or as a memory game.</li> </ol></li></ul>			<b>Resources</b> 'Operation Nest Egg: Saving New Zealand's kiwi' 'Predators in New Zealand' Appendix 3, 4
<b>Conclusion</b> <ul style="list-style-type: none"> <li>• In pairs, students fill in a problem solution chart (<b>Appendix 4</b>). See below for websites and above for books they can use.</li> </ul>			<b>Curriculum Links</b> <b>English</b> Invite a speaker from the Department of Conservation. Students prepare questions and/or write a recount of the visit. <b>Art</b> Students draw a 'wanted' poster for a predator. On the poster, students need to show what senses they use to hunt. Name some of its prey. For example, a dog uses its sense of smell, hearing and sight to find prey. It is a known killer of kiwi.
<b>Success Criteria</b> <ul style="list-style-type: none"> <li>• Participation in class brainstorm</li> <li>• Contributes to group power thinking of issue</li> <li>• Able to match their card with picture</li> <li>• Can find solutions to the problems</li> </ul>			
<b>Website Links</b> Power Thinking instructions: <a href="http://www.readingquest.org/strat/pto.html">http://www.readingquest.org/strat/pto.html</a> Pests and Predators interactive activity: <a href="http://www.tki.org.nz/r/environ_ed/interactive/index_e.php">http://www.tki.org.nz/r/environ_ed/interactive/index_e.php</a> Biodiversity Unit <a href="http://www.tki.org.nz/r/environ_ed/primary_units/endangered_e.php">www.tki.org.nz/r/environ_ed/primary_units/endangered_e.php</a> <a href="http://www.teara.govt.nz/TheBush/Conservation/IntroducedAnimalPests/en">www.teara.govt.nz/TheBush/Conservation/IntroducedAnimalPests/en</a> <a href="http://www.kcc.org.nz/plants/nativeforests.asp">http://www.kcc.org.nz/plants/nativeforests.asp</a> <a href="http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=40095">http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=40095</a> <a href="http://www.doc.govt.nz/templates/summary.aspx?id=33388">http://www.doc.govt.nz/templates/summary.aspx?id=33388</a> <a href="http://www.doc.govt.nz/templates/summary.aspx?id=33376">http://www.doc.govt.nz/templates/summary.aspx?id=33376</a>			

Lesson # 5	Social Sciences	Understand how people's management of resources affects environmental and social sustainability	What has been humans impact on New Zealand birds?
<b>Learning Intention</b> <ul style="list-style-type: none"> <li>Students will understand that throughout history, humans have made decisions that have had an impact on New Zealand birds.</li> </ul>		<b>Vocabulary</b> <ul style="list-style-type: none"> <li>Human impact</li> <li>Migrants</li> <li>conservationists</li> </ul>	
<b>Introduction</b> <ul style="list-style-type: none"> <li>Brainstorm the changes that humans have brought to New Zealand that have affected our bird's survival. Recap the article 'Cast Adrift with its own ark of unusual animals'.</li> </ul>			
<b>Learning Activities</b> Class Role play. <ol style="list-style-type: none"> <li>Students divided into 6 groups. Each are given cards that give them a role in a role play. Before they can role-play their part, students must research their role. Give students 30 minutes for this.</li> <li>When students are ready, set the scene – birds in forests, first human migrants (Maori) hunt with their dogs and release kiore (rat). Bring in one group at a time – let them mime their actions – each group interacting with the others. After a while, say FREEZE. Ask the 2 groups, what is happening. What impact is their group making on the other group?</li> <li>Set the scene again, second human migrants arrive, bringing with them more mammals, hunting birds, clearing forests. Go through above instructions again (this time 5 groups interacting) miming their actions, freezing, talking about their actions and impacts.</li> <li>Third time, set the scene, modern day – not many birds, lots of predators and pests, our human impacts like pollution, fishing methods (affecting sea birds), clearing of forests have brought wildlife to endangered status. Bring in the conservationist group and their trying to solve the problem. Go through instructions again.</li> <li>As a class, students discuss what it felt like in their role.</li> </ol>		<b>Resources</b> <b>Cards</b> <b>Birds</b> – represent the range of birds in NZ <b>Maori</b> – represent the first settlers then later modern day Maori <b>European</b> – represent the second settlers then later modern day European <b>Pests</b> – represent the range of pests (animals that compete for the same foods) <b>Predators</b> – represent the range of animals that hunt native birds and eat their eggs and chicks. <b>Conservationists</b> – represent the rangers, DOC, politicians, volunteers, organisations that save NZ's birds.	
<b>Conclusion</b> <ul style="list-style-type: none"> <li>In the 21<sup>st</sup> century we have begun to right our wrongs. Students write a T chart with 'before, during and after' – showing human's impact and how we have tried to fix the problems.</li> </ul>		<b>Curriculum Links</b> <b>Science</b> Students write a timeline of key dates about human's impact on the kakapo. <b>Art</b> Draw a class mural depicting 'before, during, after'. <b>English</b> Students read Maori legends/myths and record them on a tape recorder.	
<b>Success Criteria</b> <ul style="list-style-type: none"> <li>Observing students interaction in brainstorm and role-play.</li> <li>T Chart responses.</li> </ul>			
<b>Website Links</b> <a href="http://www.kakaporecovery.org.nz/then/decline.html">http://www.kakaporecovery.org.nz/then/decline.html</a> <a href="http://www.nzbirds.com/birds/maorimyths.html">http://www.nzbirds.com/birds/maorimyths.html</a> <a href="http://www.mtbruce.org.nz/forest_kiwi_legend.htm">http://www.mtbruce.org.nz/forest_kiwi_legend.htm</a> T-Chart template: <a href="http://www.everythingesl.net/downloads/tchart.pdf">www.everythingesl.net/downloads/tchart.pdf</a>			

Lesson # 6	Science – Living World Ecology	Understand how people’s management of resources affects environmental and social sustainability	What is being done to save our birds?
<b>Learning Intention</b> <ul style="list-style-type: none"> <li>Students can creatively think of solutions to bird conservation.</li> <li>Students can sequence events in the Operation Nest Egg programme.</li> <li>Students can research the different methods of bird conservation.</li> </ul>		<b>Vocabulary</b> <ul style="list-style-type: none"> <li>Captive breeding</li> <li>Translocations</li> <li>Predator fences</li> <li>vulnerable</li> </ul>	
<b>Introduction</b> <ul style="list-style-type: none"> <li>Tell the students this scenario: Imagine the pests and predators suddenly got a liking for Tui birds and their population was decreased to only 100 birds in New Zealand. What could we do to increase their populations? Think, Pair, Share.</li> </ul>		<b>Resources</b> Operation Nest Egg book Appendix 5, 6 photocopied or on OHP	
<b>Learning Activities</b> <ul style="list-style-type: none"> <li>Read parts of the ‘Operation Nest Egg: Saving New Zealand’s Kiwi’ book on how they have solved the problem of shrinking populations of kiwi. Students write a flow chart on the Operation Nest Egg method.</li> <li>Talk about the different methods used: captive breeding of kiwi in zoos, translocations – moving kiwi to predator free places, creating pest and predator free areas, caring for birds when most vulnerable.</li> <li>Students fill in a four square squid on four methods of bird conservation. See <b>Appendix 5</b> for master copy and instructions.</li> </ul>		<b>Curriculum Links</b>  <b>E-Learning</b> Go to the Bank of New Zealand Save the Kiwi Trust website, to ‘classroom’, read a story and choose an activity.  <b>English</b> Invite an author of a conservation book to talk about bird conservation. Students write a book review on book.  <b>Science</b> See Assessment Resource Bank Lw1053 and Lw2025 for activities and assessments.	
<b>Conclusion</b> <ul style="list-style-type: none"> <li>Play the Trigger game with students. See <b>Appendix 6</b> for instructions.</li> </ul>			
<b>Success Criteria</b> <ul style="list-style-type: none"> <li>Participation and co-operating in group activities</li> <li>Uses thinking skills in activities</li> <li>Able to use resources to find answers to topic</li> </ul>			
<b>Website Links</b>  <a href="http://www.kcc.org.nz/species/threatened/resources.asp">http://www.kcc.org.nz/species/threatened/resources.asp</a> <a href="http://www.savethekiwi.org.nz/KiwiClassroom/TeachersLog/">www.savethekiwi.org.nz/KiwiClassroom/TeachersLog/</a> <a href="http://arb.nzcer.org.nz/nzcer3/science/living/2000-499/lw2025.html">http://arb.nzcer.org.nz/nzcer3/science/living/2000-499/lw2025.html</a> Invite an author: <a href="http://www.kiwiwrite4kidz.co.nz/authorvisits.html">http://www.kiwiwrite4kidz.co.nz/authorvisits.html</a>			

**FLOW CHART ON OPERATION NEST EGG**





Lesson # 7-8	Science – Living World Ecology	Explain how living things are suited to their particular habitat and how they respond to environmental changes...	Inquiry Investigation
<p><b>Learning Intention</b></p> <ul style="list-style-type: none"> <li>Students carry out an investigation on their topic and answer their questions.</li> <li>Students summarise the information they have researched and present it in a report/presentation.</li> </ul>			<p><b>Vocabulary</b></p> <ul style="list-style-type: none"> <li>Inquiry investigation</li> </ul>
<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>Students recap on what they've learnt so far by doing an ABC brainstorm. For instructions go to: <a href="http://www.readingquest.org/strat/abc.html">http://www.readingquest.org/strat/abc.html</a></li> <li>Introduce inquiry investigation. Students need to find out <b>who</b> is trying to save that bird, <b>what</b> they are doing to save it, <b>when</b> the conservation method began, <b>why</b> the bird was endangered.</li> </ul>			<p><b>Resources</b></p> <p>Selection of books – see Resources page. Use of computers. Appendix 7</p>
<p><b>Learning Activities</b></p> <ul style="list-style-type: none"> <li>Students pick an endangered bird (see websites below for names of birds) and pose the question: What is being done to save their chosen bird?</li> <li>Students write up an Action Research Plan (see <b>Appendix 7</b>).</li> <li>Research in library and on the internet using skimming and scanning skills, sifting and organising their information.</li> <li>Students summarise the information and present in a report, presenting it as a speech, poster, pamphlet, diorama or Powerpoint.</li> </ul>			<p><b>Curriculum Links</b></p> <p><b>English</b> Teacher reads non fiction and fiction books about bird conservation. Students write a PMI chart afterwards.</p>
<p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>Students present their inquiry investigation in a report verbally (as a speech, interview, video) or visually (on a poster, pamphlet, diorama) or electronically (in a Powerpoint presentation).</li> </ul>			<p><b>Art</b> Students design a car sticker with logo promoting bird conservation.</p>
<p><b>Success Criteria</b></p> <ul style="list-style-type: none"> <li>Students self-evaluation of project see <a href="http://www.tki.org.nz/r/socialscience/curriculum/SSOL/fortune/evaluation_e.php">www.tki.org.nz/r/socialscience/curriculum/SSOL/fortune/evaluation_e.php</a></li> <li>Teacher's evaluation of project: answered questions, able to summarise information, presentation skills.</li> <li>Teacher's observation of students managing self and using thinking skills.</li> </ul>			<p><b>Technology</b> Students design an 'eco park' with local plants, trees, lizards, insects and birds. Students will need to use the web to find out what naturally lives in their area (past and present). Take students to the nearest reserve to see how they've done it.</p>
<p><b>Website Links</b></p> <p><a href="http://library.christchurch.org.nz/Kids/NZBirdsAnimals/">http://library.christchurch.org.nz/Kids/NZBirdsAnimals/</a>  <a href="http://www.terranature.org/criticallyEndangeredBirds.htm">http://www.terranature.org/criticallyEndangeredBirds.htm</a>  <a href="http://www.doc.govt.nz">www.doc.govt.nz</a>  <a href="http://www.kakaporecovery.org.nz">www.kakaporecovery.org.nz</a>  <a href="http://www.kcc.org.nz">www.kcc.org.nz</a>  <a href="http://en.wikipedia.org/wiki/List_of_New_Zealand_birds">http://en.wikipedia.org/wiki/List_of_New_Zealand_birds</a></p>			

# SO WHAT, WHAT NOW?

## Giving back to the community

Now you and your students know about the plight of birds in our country SO WHAT, WHAT NOW? Listed below are some of the activities your students could do to make a difference to endangered birds in New Zealand:

### As individuals:

- Join an organisation like KCC and learn all you can about conservation in New Zealand.
- Do some chores around home and then donate money to an endangered bird.
- Once a month/year volunteer at a local regional park planting trees, weeding, and pricking out seedlings.
- In spring, keep your cat inside at night. Also, put two bells on your cat's collar so that birds can get away from him/her.
- Keep your dog on a leash when you go for a walk in bush areas. Keep your dog fenced in.

### As a class:

- Organise a beach clean-up see [http://www.sirpeterblaketrust.org/environment/care\\_for\\_our\\_coast/](http://www.sirpeterblaketrust.org/environment/care_for_our_coast/)
- Become involved with a local regional park and plant trees en masse.
- Fundraise by putting on a class disco, sausage sizzle etc. and sponsor an endangered bird.
- Educate your local community about the plight of birds in your area. Design pamphlets and posters and put them up at community notice boards.
- Contact the local District Council or Regional Council (for a list of councils go to [www.kcc.org.nz/educators/resources.asp](http://www.kcc.org.nz/educators/resources.asp)) and ask them what they are doing to help improve birds' environment and safekeeping. Ask what you can do to help.
- Write a letter to local government and ministry of conservation asking them to support environmental group initiatives. For help writing a letter to a politician go to: [www.kcc.org.nz/howcanihelp/politicians.asp](http://www.kcc.org.nz/howcanihelp/politicians.asp)
- Plant trees that birds like in your school grounds. Choose your birds, then investigate trees that would provide them with food.

### As a school:

Do the above but as a whole school!

- Fundraise and sponsor an endangered bird every year.
- Adopt a beach, and every year clean it up.
- Adopt a regional park, and every year help with planting.
- Start a green group at your school. For tips on how to start one go to: <http://www.kcc.org.nz/howcanihelp/greengroup.asp>
- Encourage your school to become an Enviro school: [www.nzaee.org.nz](http://www.nzaee.org.nz)

### During the project students:

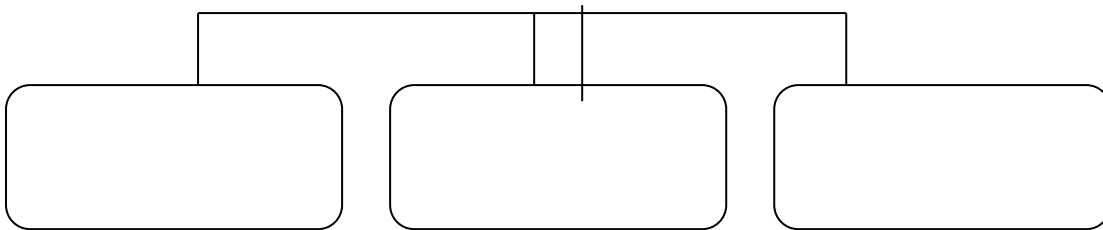
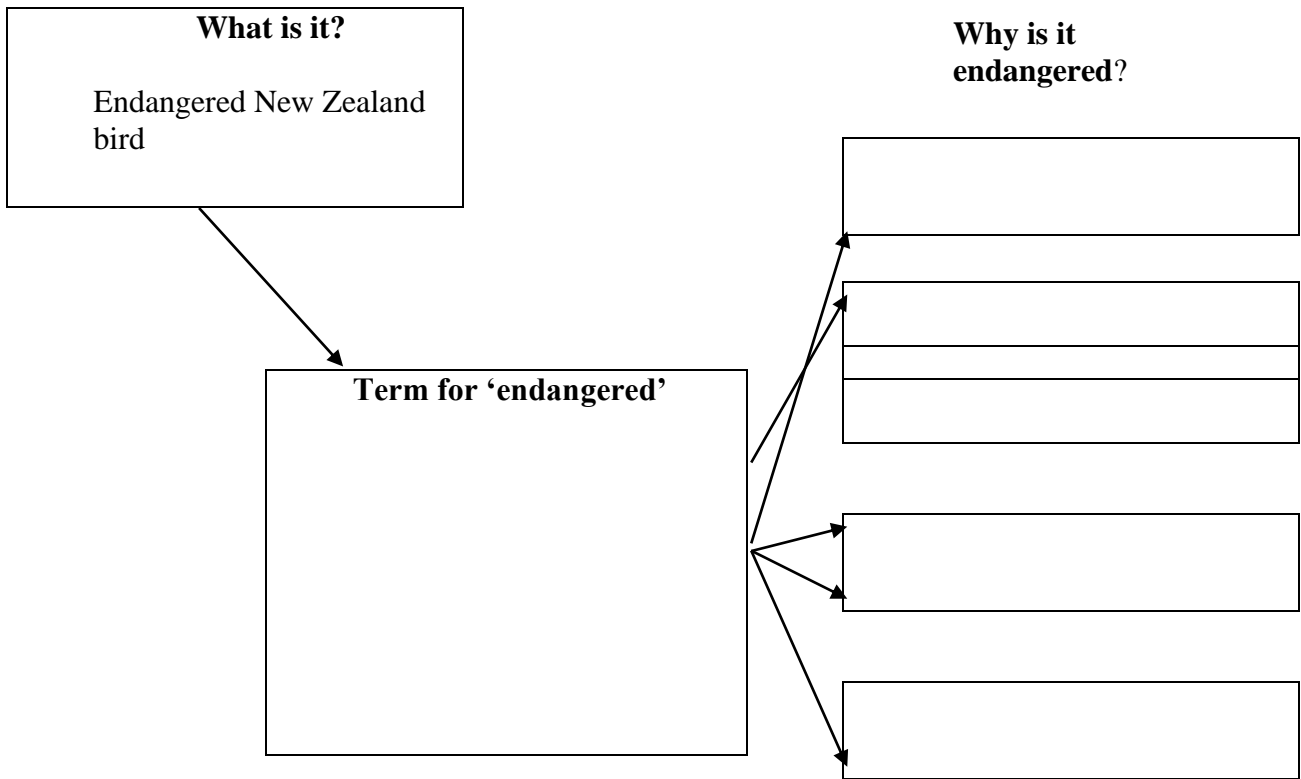
- Set a goal of what they want to achieve.
- As a class, discuss and agree which project to do.
- Throughout the project, keep a journal and record progress, problems and successes.
- Afterwards, reflect in the journal how it went and how they felt about being part of it.
- As a class, decide whether further action is needed.

## BIRD CONSERVATION LEARNING CENTRE

Set up a learning centre, with books and a display. Students choose an activity and when finished self evaluate then have a conference with teacher. Students track their work with a contract sheet.

Reading Maori Legends	Puzzle Maker
Read Maori legends about New Zealand birds then make up a legend about a native bird of your choice. For example, How the tui got its white bib, How the kokako lost the ability to fly the sky, How the weka lost its wings, How the Kakapo became so big and flightless.	Make a crossword and word find using words from one of the non fiction books on display.  Choose a puzzle from this site: <a href="http://www.puzzlemaker.com">www.puzzlemaker.com</a>
Construct	Log Entries
Make a papier-mâché of your bird. Sketch it first, then collect the resources you will need to make a papier-mâché. Use a soft drink plastic bottle as the mould. Once it has dried, paint it. For papier-mâché instructions go to: <a href="http://www.dltk-kids.com/type/how_to_paper_mache.htm">www.dltk-kids.com/type/how_to_paper_mache.htm</a>	Imagine you are a Ranger saving the endangered Black Robin (or another endangered bird). Write a week's worth of emails home, saying what you are doing to save that bird. For inspiration, see how the Rangers saved the Black Robin in 'Old Blue. The Rarest Bird in the World' by Mary Taylor.
Board Game	Symbols
Make a board game, using information about what is being done to conserve New Zealand's birds from books and the internet. Use ideas for game layout from games such as Snakes & Ladders and Monopoly.	Investigate the symbols used in Bird Conservation. For example, look at these websites: <a href="http://www.forestandbird.co.nz">www.forestandbird.co.nz</a> , <a href="http://www.savethekiwi.org.nz">www.savethekiwi.org.nz</a> and <a href="http://www.kakaporecovery.org.nz">www.kakaporecovery.org.nz</a> . Pick an endangered bird and design your own logo, promoting the protection of it.
Write a Picture Book	Poem
Read a selection of picture books on endangered birds (see Resource Page). Pick a bird, research what is being done to save it, and then write a story about it. Get someone else to read it. Proofread it. Write a good copy and illustrate it.	Write a haiku poem about your endangered bird.  For instructions on how to write a haiku go to: <a href="http://www.gigglepoetry.com/poetryclass/Haiku.html">http://www.gigglepoetry.com/poetryclass/Haiku.html</a>
Sketch a bird	Thinking Skills
Go to the zoo, bird sanctuary or your backyard and sketch a bird. You could photograph it so you have a still image to work from. After the sketch, either use that drawing to draw a cartoon skit or paint your sketch.	<ol style="list-style-type: none"> <li>1. The Ridiculous: Everyone should get rid of their cats and dogs to help save our birds. Justify this statement.</li> <li>2. The Prediction: Suggest changes you could make in your life to help bird conservation in New Zealand.</li> <li>3. The What If? What if no mammals were ever brought to New Zealand.</li> </ol>

APPENDIX 1 – Definition Map



**What are some examples of endangered birds?**

## Cast Adrift with its own ark of unusual animals

Eighty million years ago, New Zealand separated from a large continent called Gondwana and drifted in the Pacific Ocean. Over time, the tectonic plates underneath New Zealand created mountains and formed the two main islands.

During that separation and shaping, many species of flightless birds evolved in New Zealand. Without mammals to predate them, the birds foraged and hunted safely at ground level. Because of this, many of New Zealand's birds have behaviours similar to animals.

The Moa, like a giraffe stretched its long neck to graze the leaves of trees. Before it became extinct, 24 species of Moa roamed New Zealand – from as small as a turkey to as tall as a dinosaur.

The world's largest eagle, the Haast Eagle, hunted the Moa – clawing its back like a tiger. Now the Haast eagle is also extinct, living on only in legends.



Just surviving are native birds like the Takahe, browsing the grasslands like a sheep. The Bush wren scurries about the forest floor like mice. The squirrel-like kokako hops from tree to tree looking for fruit. The kiwi digs out burrows like a rabbit, and developed many adaptations of a mammal. It sees like a rat, has whiskers like a cat, hair-like feathers and has muscled legs of an animal.

Penguins, more like a sea mammal than a bird, have also been here since the splitting of Gondwana. Fossils place them here since the earliest penguins evolved.

Over many thousands of years, birds blew from Australia and Antarctica and settled here. We have more species of sea birds than anywhere else in the world. We have the largest mainland-breeding site of gannets and the only mainland-nesting site of Albatross.

However, when Maori arrived in New Zealand, around 800-1000 years ago, they hunted the flightless birds and burned the forests. It took only 100 years for the Moa to become extinct after humans arrived. The Europeans when they arrived in the mid 18<sup>th</sup> century also hunted and cleared the forests and brought animals that either competed for food or hunted the birds. With no predators to keep their populations in control, animals like rats, possums, stoats, ferrets and weasels have spread all over New Zealand and their populations have multiplied unchecked. As a result, many of our defenceless birds have since become extinct or survive only in small numbers.

APPENDIX 3 - MATCHING GAME

 <p style="text-align: center;">POSSUM</p>	<p>PEST OR PREDATOR?</p> <p>What am I?          I'm furry with big brown eyes.          I like to nibble on native trees and rather fond of birds' eggs and chicks – to eat.          I was brought over from Australia because of my fur.          I now cover 95 percent of New Zealand.</p>
 <p style="text-align: center;">DOG</p>	<p>PEST OR PREDATOR?</p> <p>What am I?          Sometimes I'm a pet and sometimes I work.          Some say I am man's best friend.          I kill kiwi adults and other flightless birds.          Once I killed 500 birds in one day.          I like to eat pet food and biscuits.          You may have one of me in your own home.</p>
 <p style="text-align: center;">FERRET</p>	<p>PEST OR PREDATOR?</p> <p>What am I?          I am the biggest in the mustelid family.          I was introduced in New Zealand to control rabbits.          I eat rats, mice, rabbits, lizards, eels, hedgehogs and other small mammals. I will also kill blue penguins, black stilts and adult kiwi.          Some people keep me as a pet, and I'm sought after for my fur.          New Zealand has the largest population of wild ones of me, of any country in the world.</p>
 <p style="text-align: center;">HUMAN</p>	<p>PEST OR PREDATOR?</p> <p>What am I?          We were the first land mammal to come to New Zealand.          We are omnivores, because we eat meat and plants.          In the past, we hunted most birds but now only hunt ducks and mutton birds.          We destroy habitat and have caused the extinction of a few species of birds in New Zealand.</p>



STOAT

PEST OR PREDATOR?

What am I?

I am the second biggest in the mustelid family. I was introduced into New Zealand to control rabbits.

I also prey on black stilts, kereru, kaka, kiwi and other birds.

I am a ferocious hunter. I hunt at night and can climb trees, and travel long distances.

I'm the number one killer of kiwi.



CAT

PEST OR PREDATOR?

What am I?

Some of my family are strays, some wild but most are pets. You might have one of me at home!

I hunt at night, have special night vision and I'm pretty good in the smelling department too.

I catch small birds, chicks, lizards, rats and mice.

I also eat tin food and biscuits.

I'm furry and like to talk to you in my special language.



WILD PIG

PEST OR PREDATOR?

What am I?

I have bristly hair.

I was introduced into New Zealand in the early 1700s.

I plough up large areas of forest floor.

I feed on forest berries, fruit, new stems, weta, earthworms and centipedes.

I compete for food native birds and insects eat.

Humans like to hunt me.



RAT

PEST OR PREDATOR?

What am I?

I was the first animal to be introduced into New Zealand.

There are three types of my species here.

We eat lizards, frogs, birds' eggs, insects and small animals. In summer, we eat fruit, berries and fallen seeds. We can even swim!

#### APPENDIX 4 – PROBLEM SOLUTION CHART

PROBLEM	SOLUTION
Humans catch sea birds as by-catch on fishing vessels	
Humans introduced animals like stoats that predate native birds.	
Stoats, weasels and ferrets kill kiwi eggs, chicks and adults.	
Dogs kill hundreds of birds in Northland and Coromandel areas.	
Cats hunt at night and kill bird chicks.	
Pests like mice, rats, rabbits, goats, pigs and hedgehogs compete for food.	
Possums destroy habitats, compete for food and kill birds and their eggs.	



## APPENDIX 5 – Four Square Grid Champions

### Resources:

Computer station, books on bird conservation, website addresses, four paper grids.

1. Divide students into groups of four. Each student is given a title e.g. Captive Breeding in zoos for one student, translocation to another etc.
2. Students search the internet and books for information on their topic.
3. When grid is finished, students turn their page over and raise hand – two points for the winner.
4. Groups share their answers. Groups with answers that no one else has, get one point.
5. Tally the points – whichever group gets the most points, wins.

Find out more information about the four methods of bird conservation.

Captive Breeding in zoos	Translocation
Eradicating and controlling animal pests and predators	Caring for eggs and chicks

### Books:

‘A Bird in the Hand’ by Janet Frame

‘Back from the Brink’ by Gerard Hutching

‘Endangered Birds’ by Lynette Moon

‘Operation Nest Egg: Saving New Zealand’s Kiwi’ by Maria Gill

Wild South: Saving New Zealand's Endangered Birds. 2nd ed. Morris, R. and Smith, H. 1995

### Websites:

<http://www.forestandbird.org.nz/dawnchorus/index.asp>

<http://www.doc.govt.nz/templates/page.aspx?id=33093>

## APPENDIX 6 - TRIGGERS

### Preparation:

Create a set of *Clue Cards*. Each card has a *Trigger Term* on one side and the clue on the other side. Print out copies of the *Trigger Terms* or write them on an OHP.

### In class:

Students rule up *Trigger Cards* - six squares for short games, nine or twelve squares for longer games. The number of grids they draw will depend on how many rounds you want to play.

- Students write in each square of their *Trigger Cards* one of the *Trigger Terms*. The list of *Trigger Terms* can be on the board or an OHP for the students to copy from.
- Shuffle the *Clue Cards* and place the cards in a pile, clue side up.
- Read out a clue, one at a time. Keep the used cards in a pile so you can check answers.
- Students cross a square out when they have an answer (or put a counter on it) to the clue on their *Trigger Card*. The first student to cross out all their clues (or get counters in every square) is the winner. (You can also have first to complete a line, a row, a diagonal.)
- Extension: Students design more *Clue Cards* and add them to the pile.


### Clue Card

- five species of kiwi
- mammal characteristics of kiwi
- kiwi calls
- problems facing kiwi
- six predators
- difference between pest and predator
- biggest killer of kiwi
- number of chicks that make it to adulthood
- looks after egg in nest
- amount of ovaries a female kiwi has
- where ranger takes the egg
- where the ranger puts the egg
- age of egg when it hatches
- four kiwi centres
- food they feed kiwi chick
- where kiwi chick goes after kiwi centre
- kiwi crèche places
- time kiwi stay in kiwi crèche
- Why kiwi crèche are safe
- What they use to recapture kiwi on kiwi crèches

### Answer Card

North Island Brown, Little Spotted, Great Spotted, Tokoeka, Rowi  
leather skin, whiskers, digs burrows, lower body temp  
marking territory, calling to mate  
predators  
stoat, weasel, ferret, possum, cat, dog  
pests compete for food, predators hunt them  
stoat  
1/20  
male kiwi  
two  
kiwi centre  
incubator  
between 74 and 85 days old  
Auckland Zoo, Kiwi Encounter, Willowbank, Westshore  
ox heart, fruit, vegetables, porridge and live insects  
kiwi crèche  
Rainbow Springs, predator-free islands and mainland islands  
from 800 g onwards (or 1 kg)  
predator and pest free  
kiwi sniffer dogs and radio receiver aerial

**From:** Cubitt, S., Irvine, R., Dow, A. (1999) *Top Tools for Social Sciences Teachers*. Auckland; Longman

APPENDIX 7

<b>ACTION RESEARCH PLAN</b>		
<b>Essential Question:</b> What is being done to save New Zealand's birds?		
<b>My Main Question:</b>		
<b>My Subsidiary Questions:</b> Who What When Why		
Use three different resources to help you with your research: Internet, library, books, expert.		
Resource	Key Words	Notes
1.		
2.		
3.		
<b>List 3 ways of presenting my information:</b> 1. 2. 3.		<b>List Materials I will need:</b>

## RESOURCES

<p><b>BOOKS - Non Fiction</b></p> <p><i>A bird in the Hand</i> by Janet Hunt (Random)  <i>Back from the Brink</i> by Gerard Hutching  <i>Bird's-eye View: Through the eyes of NZ birds</i> by Maria Gill (Penguin)  <i>Birds of Aotearoa</i> by Margaret Orbell  <i>Draw New Zealand Birds</i> by Heather Arnold (Reed)  <i>Endangered Birds</i> by Lynette Moon  <i>Know Your NZ Birds</i> by Lynette Moon  <i>Nature Kid Series</i>, Raupo/Reed Publishing  <i>NZ Bird Series</i>, Raupo/Reed Publishing  <i>NZ Wild Series</i>, Raupo/Reed Publishing  <i>Operation Nest Egg: Saving NZ's Kiwi</i> By Maria Gill, (Reed/Raupo)  <i>Plight of the Penguin</i> by Lloyd S Davis  <i>Predators in NZ</i> by Marc Mason (Reed/Raupo)  <i>Rare Birds of NZ</i> by Geoff Moon (Reed/Raupo)  <i>Real Size Guide to NZ Birds</i> by Rod Morris (Random)  <i>Takahe Lost &amp; Found</i> by Andrew Crowe  <i>The Story of the Kakapo</i> by Philip Temple  <i>Toroa: Royal Albatross</i> by Awi Riddell  <i>Wild South: Saving New Zealand's Endangered Birds.</i> ed. Morris, R. and Smith, H.</p>	<p><b>BOOKS – Fiction</b></p> <p><i>As Kuku Slept</i> by Erin Devlin (Reed/Raupo)  <i>Booming in the Night</i> by Ben Brown  <i>Kiwi Beware</i> by John Lockyer  <i>Kiwi Moon</i> by Gavin Bishop  <i>Kiwi of the Great Forest</i> by Dave Gunson  <i>Moho the Ugly Pukeko</i> by Tatiana Aslund  <i>My Kiwi</i> by Gunson &amp; Lockyer  <i>Little Penguin who wouldn't eat his dinner</i> J. Buxton  <i>Lucky Pateke</i> by M. E. Topzand  <i>New Legend of Aotearoa: NZ Birds</i>  <i>Old Blue</i> by Don Merton  <i>Pip the Penguin</i> by Joy Cowley  <i>Pi's Problem</i> by Lee Ann Orams  <i>Te Haeta</i> by Mike Davey          See Bob Darroch for picture books about kiwi          See Janet Martin for picture books about native birds          See Ben Brown for picture books about native birds          See Michelle Osment for picture books about pukeko</p>
<p><b>LINKS</b></p> <p><a href="http://www.doc.govt.nz">www.doc.govt.nz</a> Information on conservation methods  <a href="http://www.kakaporecovery.org.nz">www.kakaporecovery.org.nz</a> Information on saving kakapo  <a href="http://www.kcc.org.nz">www.kcc.org.nz</a> Forest &amp; Bird site for children  <a href="http://library.christchurch.org.nz">http://library.christchurch.org.nz</a> Library with fact sheets  <a href="http://www.readingquest.org">www.readingquest.org</a> Site with teaching methods  <a href="http://www.savethekiwi.org.nz">www.savethekiwi.org.nz</a> Information on saving kiwi  <a href="http://www.teara.govt.nz">www.teara.govt.nz</a> Information about NZ's environment  <a href="http://www.terrannature.org">www.terrannature.org</a> – Information about NZ's environment</p>	<p><b>EDUCATIONAL RESOURCES</b></p> <p><a href="http://www.tki.org.nz/r/enviro ed/primary units/ endangered e.php">www.tki.org.nz/r/enviro ed/primary units/ endangered e.php</a>  <a href="http://www.wildeducation.org">www.wildeducation.org</a>  <a href="http://www.sirpeterblaketrust.org">www.sirpeterblaketrust.org</a>  <a href="http://www.tki.org.nz/r/enviro ed/primary units/ biodiversity e.php">www.tki.org.nz/r/enviro ed/primary units/ biodiversity e.php</a>  <a href="http://www.tuitime.org.nz">www.tuitime.org.nz</a>  <a href="http://www.doc.govt.nz/upload/documents/conservation/native-animals/birds/sea-and-shore/lesson-plans.pdf">www.doc.govt.nz/upload/documents/conservation/native-animals/birds/sea-and-shore/lesson-plans.pdf</a>  <a href="http://www.savethekiwi.org.nz/KiwiClassroom/KiwiForever/">http://www.savethekiwi.org.nz/KiwiClassroom/KiwiForever/</a></p>
<p><b>SPEAKERS</b></p> <p>For an author or illustrator visit go to:  <a href="http://www.kiwiwrite4kidz.co.nz/authorvisits.html">http://www.kiwiwrite4kidz.co.nz/authorvisits.html</a>          Authors with books listed in this resource include:</p> <ul style="list-style-type: none"> <li>• Erin Devlin – Junior/Middle school</li> <li>• Maria Gill – Middle/Senior/Intermediate</li> <li>• Vivienne Lingard on behalf of Heather Arnold – Draw a native bird workshop</li> </ul> <p>Other authors you will find on:  <a href="http://www.bookcouncil.org.nz/writers/index.html">www.bookcouncil.org.nz/writers/index.html</a>          For a Department of Conservation officers go to:  <a href="http://www.doc.govt.nz/upload/documents/getting-involved/nz-conservation-authority-and-boards/nz-conservation-authority/008-doc-offices.pdf">http://www.doc.govt.nz/upload/documents/getting-involved/nz-conservation-authority-and-boards/nz-conservation-authority/008-doc-offices.pdf</a></p>	<p><b>FIELD TRIPS</b></p> <p><b>Bird Sanctuaries</b></p> <p>Kaitaia – <a href="http://www.millennium1st.com">www.millennium1st.com</a>          Whangarei - <a href="http://www.whangareimuseum.co.nz/">http://www.whangareimuseum.co.nz/</a>          Auckland - <a href="http://www.aucklandzoo.co.nz/">http://www.aucklandzoo.co.nz/</a>          Otorohanga - <a href="http://www.kiwihouse.org.nz/">http://www.kiwihouse.org.nz/</a>          Rotorua – <a href="http://www.kiwiencounter.co.nz/">http://www.kiwiencounter.co.nz/</a>          Mount Bruce – <a href="http://www.mtbruce.org.nz">www.mtbruce.org.nz</a>          Waikanae – <a href="http://www.ngamanu.co.nz">www.ngamanu.co.nz</a>          Wellington - <a href="http://www.sanctuary.org.nz/">http://www.sanctuary.org.nz/</a>          Christchurch – <a href="http://www.oranawildlifepark.co.nz">www.oranawildlifepark.co.nz</a>          Christchurch – <a href="http://www.willowbank.co.nz">www.willowbank.co.nz</a>          Queenstown – <a href="http://www.kiwibird.co.nz">www.kiwibird.co.nz</a>  <b>Regional Parks</b> (look up local councils)  <a href="http://www.localgovt.co.nz/">http://www.localgovt.co.nz/</a></p>

