Caring for textiles and clothing

Care of Collections and Taonga
Museum collections often include clothing and textiles. These beautiful, fascinating objects are very vulnerable to damage and deterioration, but there are various straightforward and commonsense steps you can take to ensure they are cared for properly.

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Introduction

This guide outlines some basic conditions to consider, and practical techniques to use when caring for textile and clothing items.

For example:
- environmental factors affecting textiles, such as light, temperature, and damage caused by insects, mould and rodents
- handling and storage
- appropriate actions to take for cleaning and repair
- techniques for display
- packing and transportation

This guide focuses specifically on textile care. For a general guide to collection conservation, see He Rauemi Resource Guide 5: Preventive conservation, which suggests practical steps you can take to protect your collections overall.

If you’re dealing with Māori textile taonga, see He Rauemi Resource Guide 18: Caring for Māori textiles. It focuses specifically on ways to care for kākahu, kete, piupiu, and whāriki. It also gives detailed instructions on how to make your own storage box – useful for all textile collections.

Both publications should be read as companions to this guide.

Textiles are fragile and vulnerable. If in doubt, ask a professional conservator.
Textiles and the environment

Light, temperature, moisture, dust, and living things such as fungi, insects, and rodents can all damage textiles. Most environmental damage is irreversible, and professional conservation treatment can be expensive, so minimise harm by thinking ahead and providing the best possible conditions for storing and displaying your textiles.

Prevention is always better than cure.

Light

Light is the greatest enemy of textiles. Damage from light accumulates over time and is irreversible. Light causes fading, bleaching, and colour changes, and can make materials dry and brittle. You may not notice deterioration at all until it’s too late.

Fluorescent bulbs emit more UV light than incandescent (regular) bulbs, and spotlights create hot spots (concentrated heat can burn).

All light is damaging, not just UV light.

Solutions

- **He Rauemi Resource Guide 5: Preventive conservation** for general guidance on protecting your collections from light damage.
- Keep light levels low. A conservator or electrician can measure these levels using a lux meter; the recommended light level for textiles is 50 lux.
- When displaying textile objects, place lighting outside display cases, if possible, to avoid heat building up. Spotlights can cause problems by creating hot spots and drying out textiles.
- Consider using lighting that turns on automatically as people approach an area, and turns off when they move on. This means that textiles aren’t exposed to light unless it’s necessary.
- Store textiles in total darkness. Consider approach-activated lighting for the storage area too.
- In a museum, block off or screen windows. If you’re displaying textiles in an historic house or building, filter the light during opening hours by pulling down roller blinds made of plain, fine, light-coloured cotton fabric. When the building is closed, cover the windows with dark curtains or blinds to keep out all light.

Temperature and moisture

Temperature and relative humidity affect each other, and they should be considered together to avoid fluctuations and extremes. Natural fibres such as silk, wool, cotton, linen, and other plant fibres react to changes in temperature and humidity by absorbing or releasing moisture. This makes them expand and contract, which can eventually break the fibres.

Too much moisture in the air can allow moulds and mildew to grow on textiles. Dyes may bleed. Too little moisture, or too much heat, dries out textiles and makes them brittle.

Solutions

- **He Rauemi Resource Guide 5: Preventive conservation** for detailed information about measuring and controlling relative humidity and temperature.
- Display textiles at a constant temperature of 18–20°C and 50–55% relative humidity. For storage, 12–18°C and 50–55% relative humidity is ideal.
- Keep the temperature stable. Many museums switch off their heating at night, and this fluctuation in temperature speeds up the deterioration of textiles.

When considering temperature and relative humidity, remember you need to protect your precious collection items, not just keep museum staff comfortable.

Damage from light happens gradually. You may not even notice until it’s too late.
Dust
Dust can damage fibres by causing cuts and abrasions. It also obscures a textile’s appearance.

Solutions
• Old buildings are dusty, and the movement of people creates dust. As a result, you need to dust and vacuum regularly.
• Make sure doors and windows fit well.
• Textiles on open display can act as a filter and retain dirt and dust. Display items in cases or within glazed frames.
• However, don’t make a display case airtight – this may cause excess humidity. Allow filtered air to move in and out by placing a fine mesh filter over a small opening in the case top, or velvet ribbon around the case door.

Apply good housekeeping principles.

Attack by insects, rodents, and microbes
Spores of mould and mildew are always present in the air. In moist conditions, these can grow on textiles and cause staining and damage.

Mice, rats, borer, and carpet beetles are pests that museums can do without. Moths and carpet beetles favour wool and fur, but can attack other fibres, even synthetics. Rats and mice can also be very destructive.

Solutions
• Keep storage and display areas scrupulously clean and tidy.
• Buildings with a controlled environment will reduce insect infestation, as the building must be sealed to maintain a stable environment. As a result, insects are less likely to come in through open windows and doors.
• Pests can also arrive with collections and objects coming into the building. See He Rauemi Resource Guide 5: Preventive conservation, for advice on dealing with this.

Housekeeping matters
Good housekeeping is vital for preserving textiles and minimising the likelihood of pests. Clean, well-stored textiles are less vulnerable to deterioration. Regularly inspect, vacuum, and dust your display and storage areas. Most pests like to feed and reproduce in dark, undisturbed places. Clean, correctly-stored textiles are less vulnerable.

Remember that prevention is better than cure. Keep storage, display, and work areas clean, tidy and dust-free, and make sure food is never eaten or kept in these areas.
Handling textiles

Handling can cause wear and tear of textiles. Aim to handle them as little as possible. Protect them from skin contact.

**Solutions**

- Wear clean cotton gloves or disposable gloves to protect textiles from grease, dirt, perspiration, and acid on your hands.
- Before you move an item, think ahead. Know where you’re going to put it down.
- How large or heavy is the item? Make sure you have enough people to carry it. If you’re taking it through doors, you may want to open these ahead of time.
- Support objects carefully and gently so their weight is evenly distributed.
- A table on wheels, a trolley, tray, or box should be available for moving textiles.
- Good documentation and labelling, including photos and measurements, will also minimise the need for handling.

**Wear disposable or clean white cotton gloves when handling textiles.**

**Labelling and documentation**

Good labelling and documentation allow you to minimise handling, as it’s easier to find items.

- Have detailed documentation of the textile’s fabric type, colour, age, provenance, dimensions, and condition. Include photos and measurements.
- Keep records of where the item is stored, when it’s on and off display, any loans and the item’s condition on return, and dates of housekeeping or conservation treatments.
- Label each item with an accession number. Write the number with a Sanford Rub-a-Dub laundry-marking pen on cotton tape or an acid-free card swing label. (Do this before attaching the label to the item!) Using cotton thread and a medium or fine needle, stitch the label on with a minimum of stitches. Don’t take stitches through to the item’s outer surface.
- Put labels in a consistent position, so it’s easy to find them. Make sure they won’t show if the textile is on display.
- Never use pins or adhesive tape, and never write the number directly on the textile.

**Don’t use ballpoint or other pens near textiles.**

*Example of a correctly labelled textile*
Choice of suitable storage area

Storing textiles in a box or a drawer creates a smaller micro-environment that is easier to control. Storing items on open shelving means the whole room is the environment, which is a much larger area to control.

Tips for storing textiles:
- Don’t store textiles in plastic. This can trap moisture and encourage mould growth. In the event of a fire, the intense heat may melt the plastic and fuse it to the textile.
- Label boxes and drawers accurately. Textiles can then be found easily and you minimise handling.

Never store food or drink near textiles or textile storage areas.

Storage requirements for flat and three-dimensional textiles

Flat textiles

Flat textiles can include wall hangings, carpets, curtains, household linen, bed covers, flags, tapa, cloaks, embroidery, lace, and some costumes.

Store them flat where possible. If you don’t have enough space, roll flat textiles over a covered tube and suspend the tube. If a textile is too large to roll, you can fold it. However, this should be a last resort.

Storing textiles flat

Store textiles flat in acid-free boxes or drawer units. These may be metal or wooden. If wooden, make sure the wood is sealed with three thorough coats of Wattyl Estapol Acrylic. Line and interleave the textiles with acid-free card, acid-free tissue, well-washed unbleached calico, or Tyvek™.

See He Rauemi Resource Guide 18: Caring for Māori textiles for instructions on making an acid-free box for storage. You can also buy various sizes custom-made from the company Conservation Supplies (see page 13 for supplier contact details).

Rolling flat textiles

- Use cardboard tubes covered with acid-free tissue or Tyvek™.
- The greater the tube’s diameter, the fewer times the textile has to go round it. Make sure the tube is longer than the item being rolled.
- Pad large tubes with Dacron™ wadding covered with washed, unbleached calico. For small textiles, you don’t usually need wadding.
- Sandwich the textile face down between two layers of washed, unbleached calico or acid-free tissue, then roll it carefully around the tube, keeping it smooth and straight.
- Always roll textiles face down. Decoration such as embroidery, painting, or decorative weaving is less likely to fracture with a convex curve.
- Cover the roll with a layer of washed, unbleached calico or Tyvek™, then tie the whole roll with at least three Tyvek™ strips 40–50 mm wide. Tie them firmly in a bow, but make sure there are no indentations.
- Suspend or support the roll so there’s no pressure on the textile.
Folding flat textiles
- Only fold textiles if there's not enough space to store them flat or rolled.
- Pad folds generously with crumpled acid-free tissue or Tyvek™ – or calico-covered sausage shapes of Dacron™ wadding. This will stop sharp creases forming, which in time cause the fabric to wear and fracture.
- Refold at least once a year.

Three-dimensional textiles
These can include:
- most items of clothing
- costume accessories, e.g. handbags, hats, and shoes
- dolls
- basketry
- upholstered furniture.

When storing three-dimensional textiles, avoid hard creases or too many folds. Make sure they have full padding and support.

Storing different types of three-dimensional item
Hats, shoes, bags, and basketry
Pack these loosely with tissue inside, or insert covered Dacron™ wadding so they hold their original shape.

Fans
Keep fans closed. Wrap in acid-free tissue.

Umbrellas and parasols
Keep these partially open. Put a roll of tissue around the handle, just inside the cover.

Dolls
Place small pieces of bunched tissue up dolls' skirts. Dolls with moving eyes should be stored face down on a padded surface.

Upholstered furniture
Cover furniture with cotton or Tyvek™ dust covers.

Costumes
- Do up all buttons, hooks and eyes, and zips.
- Hang the costume on a padded hanger (see ‘Hanging costumes’ below) or lay flat.
- When storing dresses in acid-free boxes, put the skirt in first, front down, and fold the bodice back over the skirt. Pad folds well and also pad the bodice and sleeves.
- Put only one dress in a box.

Only hang costumes that are strong enough. Damaged, delicate, bias-cut, knitted, and beaded garments should be laid flat. You can store beaded costumes safely using a special duvet you make yourself. See instructions on page 09.

Large textiles require two or more people to roll them.

Hanging costumes
- Wire and wooden hangers that aren’t padded can cause a great deal of damage to the neck and shoulder of garments. See page 08 for two types of hanger you can make yourself.
- When hanging dresses, in either one or two pieces, carefully hand stitch at least four pairs of cotton tape lengths to the waistband or waist darts. Tie each pair in a bow on the hanger shoulder, slightly shorter than the waist-to-shoulder measurement, so they take the strain off the skirt.
- Always cover the garments with individual front-opening covers of Tyvek™ or well-washed calico.
Making garment hangers

Simple padded hanger

- Use a wooden (not wire) hanger, with a long hook to allow for high collars.
- Place three layers of Dacron™ wadding over each shoulder. Stitch these together under the hanger, and around where the hook emerges.
- Cover the wadding with calico or Tyvek™ to keep all the layers together.

Te Papa hanger

Materials

8 mm aluminium rod
Custom-made ‘Te Papa hanger’ aluminium hooks from Ullrich Aluminium
50 mm diameter polyethylene foam rod
See page 13 for supplier contact details.

Tools

Hacksaw
Fine grain metal sandpaper
Long auger drill bit (6 mm) and power drill
Allen key (about 3.5 mm) for tightening grub screw
Vice for holding and bending rods
Craft knife, ruler, etc.

Instructions

1 Cut a piece of aluminium rod 400 mm long.*
2 Sand the ends and any rough edges.
3 Mark the centre of the rod. Insert into the hook at this point, and tighten its grub screw using the Allen key.
4 Clamp the hanger in a vice. Bend the rod to the angle needed to fit the garment’s shoulder line.
5 Cut two pieces of foam rod 250 mm long.
6 On the end of the foam rod, mark the centre of its diameter.
7 Clamp the foam rod in the vice, being careful not to distort the shape. You can do this by sliding the rod inside a piece of clean 50 mm PVC drainpipe before putting it into the vice.
8 Drill through the foam rod lengthwise from the centre mark, to a depth of 200 mm. You can do this by putting a piece of masking tape 200 mm along your drill bit. Then drill at low speed, making sure you keep the drill centred, until the tape reaches the end of the foam rod.
9a Cut one end of each foam rod at an angle, so it will butt against the other foam rod at the hanger’s centre. The foam should cover the base of the hook where the aluminium rod goes through. Also carve out the end of the drilled hole, to fit the hook’s base.
9b Thread the foam rod onto the hanger.
10 Wipe down the hanger before use to remove any aluminium filings.
11 Make sure the garment doesn’t touch the aluminium rod or hook. You can place a small offcut of foam rod over the shank of the hook to stop collars touching the aluminium.

*400 mm is the most commonly used aluminium rod length. Some larger garments may need 450 or 500 mm lengths, or even longer for garments with wide necklines. Remember to adjust the foam rod length too, in these cases.
Making a beaded-dress duvet

A beaded-dress duvet is an excellent way to store and transport beaded garments. It prevents the weight of the beads from stressing the base fabric.

To make the duvet:

1. Cut a length of well-washed unbleached calico, about 2080 x 1190 mm. Machine hem the raw edges.
2. Cut a piece of Dacron™ wadding, about 1300 x 600 mm. Place in centre of calico.
3. Cut two further lengths of calico, each 1330 x 600 mm.
4. Place one of these pieces on top of the Dacron™ wadding. Machine stitch in place along all four sides.
5. Hem the second piece and lay it over the padded section. Stitch in place along one short edge only, to create a flap.
6. Carefully place the beaded garment on the padded section. Cover with the long flap.
7. Fold the remaining short ends over the centre, and then both long sides. The garment is now completely covered and supported.
8. Roll up the duvet with the garment enclosed. Tie it with three tapes of cotton or Tyvek™, to secure.
A gentle vacuum to remove dust is the easiest and safest form of cleaning in untrained hands. Place a piece of monofilament screening over the textile, or use nylon net over the short end of the hose, and use the lowest suction setting to carefully vacuum the item. This will stop the textile being sucked up. Don’t do this on very fragile or fractured garments!

**Treatment for conservation**

If you think a textile needs repairing, consult a professional conservator first.

Textile conservation is about stabilising and supporting textiles, with minimum intervention and no re-weaving or re-embroidering. The technique of darning and using lots of little stitches to hold holes and fractures together is not used by textile conservators. Frail textiles are supported by mounting over a similar fabric that has been specially dyed so holes or worn areas aren’t immediately obvious.

**Never use ...**

Never use glue, plastic putty (e.g Blu-tak™), adhesive tape, pins, or staples to repair textiles, even temporarily.

**Alteration is unethical.**
Displaying your textiles

Only display textiles that are in good condition, preferably in cases or glazed frames to protect them. The recommended display period is six months, followed by an 18-month rest.

If you need a picture framer, choose one who uses conservation methods. When textiles are being displayed in the open or for a long period (e.g. wall hangings), check them regularly for deterioration, insects, and dust. Remove dust by vacuuming, front and back, through a screen.

How to hang textiles

**Velcro™ method**

The Velcro™ method is by far the best for hanging wall hangings and large textiles. It supports the textile by distributing weight evenly along the top edge, making the object easy to install and remove. Many textiles don’t have straight edges, and this method allows you to hang the textile more or less straight and adjust its hang. In an emergency, the textile can be easily removed by carefully pulling it away from the Velcro™.

- Textiles to be hung should have a loose lining of washed calico, which will protect them from the wall and stop dust settling on the textile’s back.
- Machine stitch both long edges of a Velcro™ loop strip along the top edge of the lining fabric.
- Carefully hand stitch the lining to the reverse top edge of the textile. Take the stitches through the lining and the textile on either side of the Velcro™ strip. (It is very difficult to hand sew through Velcro™.) Pass the needle between the textile’s fibres, not through them. Use correct stitching tension, as too tight a stitch may cut fibres, and too loose won’t support the textile adequately.
- Staple the Velcro™ hook strip to a wooden batten and fix to the wall.
- Hang the textile by pressing the Velcro™ loop strip to the hook strip.

**Wash all support or lining fabric well to remove the dressing.**

**Trapeze or rod method**

For textiles that are too long to display by the Velcro™ method or aren’t suitable for stitching (e.g. tapa), either:

- roll one end round and round a covered tube, with the required amount of textile hanging down; or
- hang the textile over a padded roller in a trapeze fashion (like a towel over a rail), counter-balanced by its own weight.

Displaying three-dimensional textiles

Display small objects like hats, shoes, or bags with their storage padding still in place.

**Dummies**

Most costumes are best displayed on a tailor’s dummy or a correct-sized mannequin.

The purpose of the dummy is to fully support the garment without imposing strain on it. Tie the waist tapes used for storage (see page 07) on the shoulders.

Excellent dummies and mannequins are available for sale. See the list of suppliers, page 13.

It is difficult to adapt a 20th- or 21st-century shop mannequin to fit and look right in an 18th- or 19th-century garment. You can make a simple, inexpensive dummy by following the instructions in Janet Arnold’s *A Handbook of Costume* (page 65) or Jennifer Quéré’s article in the *Art Galleries and Museums Association of New Zealand Journal* Vol 8 (Nov 1977).
Packing and transport

Pack textiles carefully when transporting them. They should arrive at their destination in the same condition in which they left you.

- Think carefully about packing textiles. Pack frail and oddly-shaped pieces so they can be taken straight from the packing case and put into the display case, minimising the need for handling.
- Make sure the textile is well supported. Include fittings and mounts, which will make things easier for the exhibition team at the other end.
- If possible, transport textiles in a custom-made wooden crate that is protected against weather and poor handling, and fitted inside with padded supports.
- When you pack a textile to be transported, apply all the techniques you’d use when storing it. Pack it out with lots of bunched acid-free tissue and Dacron™ wadding.

Emergencies

See the He Rauemi Resource Guide 5: Preventive conservation for general guidance about protecting your collections in the case of an emergency.

If a coloured textile gets wet, its dye may run. Do not dry it. Keep the wet textile in a sealed plastic bag until you can get advice from a professional conservator. Don’t discard it – many textiles can be saved.

Don’t forget

Key points in textile care
- Prevention is better than cure.
- Handle textiles as little as possible.
- Apply good housekeeping principles.
- Keep accurate documentation.
- Alteration is unethical.
Suppliers of materials

**General supplies for conservation treatment and packaging**
Conservation Supplies, 81 Great North Rd, PO Box 646, Warkworth, Auckland. Accepts small orders.
(09) 425 7380
info@conservationsupplies.co.nz
www.conservationsupplies.co.nz

**General supplies for storage and packaging**
online@packaginghouse.co.nz
www.packaginghouse.co.nz

**Acid-free tissue and acid-free card**
Port Nicholson Packaging, PO Box 38 133, Wellington.
(04) 568 5018
sales@pnp.co.nz

**Aluminium rod and custom-made hooks**
Ullrich Aluminium, Private Bag 39810, Wellington Mail Centre, 1a Cornish St, Petone. For custom-made hooks for Te Papa hangers, contact the production manager.
0800 500 338
www.ullrich-aluminium.co.nz

**Dacron™ wadding**
Charles Parsons NZ Ltd, 525 Rosebank Road, Auckland. Unit 4, 65 Kaiwharawhara Road, Wellington. 1 Lancaster Street, Christchurch. Sells in bulk – minimum 50 m roll. For smaller quantities, try fabric and craft shops.
0508 727 7667
www.charlesparsons.co.nz

**Ethafoam**
Dunlop Foams, Private Bag 19992 Avondale, Auckland.
(09) 828 330
bmiller@dunlopfoams.co.nz

**Tailors’ forms and mannequins**
Purfex, 15-17 Fremlin Pl, PO Box 8664, Auckland.
0800 830 500, (09) 828 5206
sales@purfex.com
www.purfex.com

**Tubes**
Sonoco New Zealand. (09) 839 0177
sales.sonoconz@sonoco.com
Fabric shops
Carpet and linoleum stores
For small tubes, try Gladwrap™ tubes, etc.

**Tyvek™**
Fabri-Cell International Ltd, PO Box 97 047, Wiri, Auckland.
(09) 266 4924
nz.sales@fabricell.com

**Gloves**
White cotton gloves: Takapuna Distributors Ltd, Box 33 784, Takapuna, Auckland
09 441 3413
info@omnigloves.co.nz
Kirkcaldie & Stains, PO Box 1494, Wellington.
NZ Safety, with branches throughout New Zealand
www.nzsafety.co.nz
Disposable gloves: available from pharmacies and supermarkets.
Further reading


Other resources

Directory of conservators, available from the Secretary, New Zealand Conservators of Cultural Materials, email info@conservators.org.nz, website www.conservators.org.nz. Provides a list of conservation departments in public institutions and a list of professional conservators available to offer advice and treatment services.

Further training

There may be opportunities to attend a workshop about caring for textiles for more information on the subjects covered in this guide. Contact National Services Te Paerangi to find out about training opportunities in your area.

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