TEXTILE + DESIGN LAB

Case study number: 12/2011

Project Title: R&D project - Development of NZ camouflage design for digital printing

TDL Partner: Stoney Creek Limited

Contact: Sarah Macdonald

Website: www.stoneycreek.co.nz

Project Period: August - December 2011

Partner Profile: Stoney Creek is a design and manufacturing company specialising in hunting apparel. Established seventeen years ago, Stoney Creek has developed a reputation for attention to detail and quality. The company is based in Mount Maunganui, and sell their products across New Zealand and Australia. Stoney Creek source their materials and technology internationally and develop and test their garments in New Zealand. Their range does include urban wear, but their focus is on developing outdoor apparel for extreme New Zealand conditions.

Project back ground: There are photo-realistic camouflage patterns and fabrics available on the market, but they predominantly feature North American trees and shrubs, and are therefore not ideal for NZ conditions. Stony Creek were looking for camouflage patterns suited to New Zealand, with North and South Island variations that they could produce to the best standards possible. Stoney Creek had tried to develop designs with their screen printers both in China and New Zealand but with a screen limitation of just 8 colours combined with communication issues, the resultant trials could not be taken into production. Stoney Creek staff became acquainted with the TDL at a Textiles New Zealand event in Wellington in 2009. Subsequently the company commissioned the TDL to develop a New Zealand printed camouflage design that would be digitally printed onto an appropriate fabric for its intended application.

Project Description: Stoney Creek wanted a modern, New Zealand appropriate, camouflage digitally printed design. It needed to feature NZ flora, have a NZ bush colour pallet, be aesthetically consistent and functional as camouflage, and appealing to their target market of hunters.

Project Methodology: Jason Stirling of Stoney Creek met with TDL staff in mid 2010 to discuss the project brief and to show examples of existing overseas-sourced camouflage designs. Happy with the facilities and the information he received from TDL staff, the lab was commissioned to develop the design to the pre production stage. Jason's brief called for four layers of design: a very light background shadow layer, a middle shadow layer with detailed twigs, another layer with detailed twigs in colour, and a top layer with tree trunk detail. The brief also called for specific technical criteria, such as tree bark detail that appears realistic even when rotated 180 degrees so that the fabric could be laid up and cut in either direction.

AUT lecturer in digital print design, Angela Fraser took on the responsibility for the development of the design. She composed the camouflage design using original photographic images of native plants, layering the individual patterns and matching them to Stoney Creek's existing pallet so that she could predict how it would look when printed. The specific New Zealand camouflage aesthetic raised challenges, requiring Angela to take hundreds of photographs for research and as the basis of the photographic montage. These images had to be edited together without glitches, in a consistent 'light' and density to be appropriate for camouflage, and still be aesthetically pleasing.

Jason travelled to the TDL several times to discuss the progress of the development. Stoney Creek had not developed a digitally printed fabric from scratch before and were careful to research and test at each stage of development. When Jason was satisfied with the design and tests, the project was wrapped up ready for Stoney Creek to find a digital print facility capable of mass producing the fabric at a cost effective price point. Stoney Creek has made attempts to produce the fabric overseas but technical and communication issues have so far prevented commercial production.

Outcome: When contacted toward the end of 2011 it was clarified that Jason Stirling had recently left Stoney Creek so feedback about the project was at first limited. This prompted them to revisit the development of the new camouflage design. At the beginning of 2012 Angela Fraser visited Stoney Creek and met with Sarah MacDonald who was by then responsible for new product development. By then a short run meterage had been undertaken by Textiles Alive, a local Tauranga printing company. This had been made into garments and successfully tested in the field. Since then, the design has successfully gone into production with printing undertaken in China and is now available across a range of products including jackets, backpacks and caps.

Feedback: Recreational camouflage design involves three dimensions – two of these are common to most camouflage strategies; firstly, a colour range that needs to blend in within the general colouration of an environment when viewed from a long distance; secondly, an abstract pattern based on generalized plant or land shapes and hues formed by the fall of light and shade, which corresponds to a middle distance. In the case of imported North American camouflage textiles, developed for conifer or deciduous forests, these basic colour and shape parameters are distinctly different from those for evergreen but non-coniferous New Zealand native bush. However consumer oriented hunting camouflage also involves another, close-up layer, which is essentially decorative and is based on detailed plant forms. All three layers need to work together to create an attractive design, but also to work strategically, to disguise the wearer across various distances. The use of digital photography and Photoshop software introduces new tools for developing colour palettes and for recording plant details to include in the close up, repeat layer of the design. However information about the use of these techniques for textile design is difficult to access. This has led to experimentation, adaptation and the pioneering of new methods, which were used in the camouflage project.

Conclusion: The camouflage print design development required a more scientific approach than traditional textile print design for fashion. The particular demands for pattern, layering and colouration led Angela Fraser to push existing techniques and to develop new approaches. While a satisfactory result was achieved through sampling at the TDL, the print was not immediately transferrable to traditional screen printing. However the company utilised dye sublimation printing to achieve a successful result. Using local company Textiles Alive to sample has also proved to be an invaluable step in their process to provide a visual reference when printing offshore.

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