

# Irreversible Color Expressions

*Report no. 2*

## Preface

This text is a continuation of the project *Irreversible Color Expressions Åland\_2013 Report no. 1* (Worbin, 2013). It is, however, not a follow-up in the sense suggested in the first report, namely, to produce a visual comparison of the textiles over time. It did not feel meaningful to invest such extensive resources in attempting to reproduce a specific color in one medium (textile) and translate it into another (digital image), as too much effort was directed toward the documentation itself. Instead, it appeared as a laborious act of verification at an overly early stage of a process that is inherently relative.

The color expression of textiles exists in relation to the material from which the textile is made, as well as to the plant itself (where it has grown, at what stage in its life cycle, or which parts have been used). Furthermore, geographical location, season, and the conditions under which dyeing has taken place, along with how the dyed textiles have been stored and used, all continue to affect the color expression. It was, quite simply, irrelevant to present the results in that way at that stage. Therefore, this continuation takes on a different character, focusing on the phenomenon of color change and its experiential dimension, both inherently norm-challenging and requiring increased reflection and new exploratory approaches within the framework of a new design philosophy.

Through *The Sweater*, a practice-based design project, established color conventions are examined by means of a hand-knitted garment. By shifting the understanding of color from a stable and controlled parameter to a mutable and situated phenomenon, the project explores how changing color and form can renegotiate the relationship between expression, material, use, and temporality. *The Sweater* has been part of a personal wardrobe for over a decade, and a conversation with its wearer is presented here. The work aims to suggest alternative perspectives on quality, value, and lifespan in textile expressions.

# Introduction

Consumer behavior, even in 2026, is still largely characterized by the replacement of physical materials (products or objects) when a new color or form expression is desired in clothing or interiors. At the same time, the ability of dyed textiles to retain their color is described as one of the most important quality criteria within textiles (RISE Research Institutes of Sweden, n.d.).

In the aftermath of the linear efficiency ideals of industrialism, color and hue are still understood as standardized, measurable, and thus repeatable phenomena throughout production and across the intended lifespan. Within the textile industry, color is specified at the moment of production and follows the material throughout its entire lifecycle. Through color systems such as NCS (Natural Color System) and Pantone, the color process is coordinated from sketch to artifact via standardized testing and production stages, extending into the spaces and garments we create.

The prevailing ideal is to produce lightfast colors, colors that do not change during use but remain within given standards tied to specific applications. This requires chemicals that have significant impacts on both production environments and immediate surroundings, including bodily and spatial contexts. Within the automotive industry, for example, coatings are developed to match colors of vehicles that have already been exposed to specific, estimated conditions over time, in order to enable invisible repairs where the whole appears unchanged.

At the same time, color is a powerful phenomenon with both psychological and social dimensions. It influences how we perceive spaces, materials, and objects close to the body, and can alter moods, behaviors, and interpretations over time. Despite this complexity, the majority of textiles are designed to maintain their color expression as something stable and unchanging, while consumers often replace fully functional products before the end of their lifespan. Kirsi Niinimäki (2024) highlights the need to shift industrial pace and instead prioritize longer use phases, recycling, and reuse of textile materials and products.

The objects we surround ourselves with reflect, to varying degrees, their processes of production and the more or less visible choices made from raw material to final application. Through the concept of the “digital product passport” (European Commission, 2024), there is an ambition to make production processes and material origins visible. Within the same institutional framework, visions and legislation such as the Green Deal (2019) and the New European Bauhaus (2025) emphasize the relationship between aesthetics, sustainability, and societal transformation.

## Designing Change

Through *The Sweater*, a practice-based design example, established color conventions within textiles are examined. The project departs from a critical shift: from color as a stable and controlled parameter to color as a mutable and situated phenomenon.

The aim is to explore how changing color and form can renegotiate the relationship between expression, material, use, and temporality within textile design, and to suggest alternative ways of understanding quality, value, and lifespan in textile objects.

To focus on the variability of color expression, a traditional Nordic knitted sweater pattern was chosen as the point of departure. The central design question concerned the relationship between color, pattern, temporality, and wear, in order to investigate how and when change becomes perceptible in a textile expression. It also addressed whether change should be immediately visible or emerge gradually over time, and which colors and dyeing principles could support this.

The yarns selected for the patterned knitting of the sweater were not post-treated with mordants or other fixing agents, in order to investigate the inherent properties of the colors in relation to the wool. They were selected from the color scales and recipes developed in *Irreversible Color Expressions Åland\_2013 Report no. 1* (Worbin, 2013). The color palette of *The Sweater* consists of brownish, low-contrast hues, chosen based on the assumption of gradual shifts over time. Closely related hues, such as those dyed with sea buckthorn in different water qualities, were combined to explore whether they would converge or instead accentuate subtle differences.

By selecting irreversible dyes, the pattern expression was rendered “unstable”. Would the changing expression be perceived at all? If so, how would it manifest as a fading of the knitted pattern, as a new pattern, or as a variation of the same pattern expression?

## Wearing Changeability

A hand-knitted sweater made from plant-dyed yarns without chemical fixation allows the color to change over time in relation to use, light exposure, and washing.

The intention is to explore how color and form change visually over time when unconventional dyeing methods are used. The concept of *wearing changeability* is examined by allowing one person to use the sweater over an extended period. What follows is an excerpt from a conversation with the wearer:

Thank you for wearing and keeping this sweater. The idea was that you would have it as “yours” for two to three years, and now you’ve had it for more than ten. Would you like to tell me a bit about your experience, did you dare to use the sweater?

*Yes, but in the beginning, I washed it and it shrank a little, so I started using it as part of a combination outfit, wearing it together with a specific shirt. So I needed both, and I ended up using the sweater less. But now, seeing it again, the wearing involved several things. Since I knew that UV light might affect the color, I became extremely aware of whether I would be outdoors or not. It became a garment for days when you don’t need wind protection but it’s still quite cold, so it found its niche. That also made me think, “yes, today is a day for it.” But it also worked with the shirt I had, so they became a pair. It’s a thick sweater, so you need something long-sleeved underneath... I would have liked to use it more. I didn’t really think, “has anything changed visually since last time?” it was more that it felt active. Being outdoors became important. I activated it by wearing it and by being outside.*

Washing changed the shape in this case—did you notice anything else that changed?

*I mostly thought of the sweater as something alive. Just the feeling that it was active...the sweater is an active part compared to other clothes. I never left it outside unless I was wearing it. You can do that with other garments. If I took it off, I put it in the shade, because then it was just exposed, not worn. And I think I took care of it...*

Because it was part of something else?

*Yes, I knew it was you and your mother....that she had knitted it.*

*There’s something about knowing who made it.*

*Yes, and I’ve met her.*

*What if the yarn had come from sheep... that I had met?*

Yes, and if that wool would be used for your clothes, would that have affected you?

*Yes, I think so... there are things I eat that I know come from a neighbor’s farm, but with clothes I don’t have an example. But I was in England, and those sheep...oh, I felt like I almost wanted to eat them because they had such a good life, being in that beautiful environment. To wear that would have been nice, to borrow some of their warmth. Now that I see the sweater again right, those were the days at home on the terrace... those days. Before, it was more something I had in the wardrobe.*

How about the brown color, was it difficult to wear with other clothes in your wardrobe?

*It went in periods. Sometimes it felt right, sometimes not. But I never thought I wanted a different color, more the shape, that it crept up a bit on the back.*

Did anyone around you comment on the sweater?

*I don't think so. People rarely comment on what I wear. At work, here, others who were also involved commented, but otherwise, no, I don't think so.*

How did the aesthetic fit into your wardrobe?

*Quite well. I had that shirt, the two worked well together. When I was going to return it, I looked it over, and yes, there are a few stains...*

You've taken good care of the sweater. Did you, for example, wear it when working in the garden?

*Not really if I was dealing with soil, more if things drifted into doing something else. I have cooked in it. What I liked was that it felt active, that I became aware of that. Finding days when I didn't need a jacket...now I remember those beautiful days in spring and autumn, warm, crisp days without wind.*

There are no moth holes, it seems to have held up very well.

*Yes, when I've been away, I put all wool in the freezer, even if I haven't seen anything. Everything I don't wash goes into the freezer. So it ends up there in intervals. The nice thing about The Sweater was also the limitation, being outdoors... and now I remember you had a question about how much I was outside, and when I realized that some days I'm hardly outside at all, that was quite difficult. Realizing how little time I spend outdoors. Like when you come back from vacation, if I don't go out at lunch, I sit inside all those hours. So I became more aware of that.*

Would you go outside more if you needed to air your sweater?

*I have some training sweaters, and I like to exercise outdoors. They're very thin and worn, I use them for skiing, rowing, they're used every week and washed often. They're kind of outdoor sweaters. It would have been interesting if one of those were dyed like this, in terms of color. The one I have is dyed traditionally pink-purple, not a color I would have chosen. When The Sweater has been in the wardrobe, I've felt a bit guilty. Now, seeing it again, it's only positive memories, an outdoor sweater. I want to use it outside. Seeing the difference isn't that important, but activating it is.*

So the visual aspect didn't play such a big role—more that you knew the background?

*Yes, being aware of the slow change, the passage of time, more than comparing different expressions. Now I've also learned more about UV light, that it doesn't only come straight from above. A single-color garment could also have been interesting in relation to the body. But also how patterns emerge.*

*Personal conversation with H. Landin (6th November, 2025)*

## **The Sweater Then and Now**

In 2013, *The Sweater* was newly knitted. The pattern appeared softer and less distinct, with colors and forms blending into one another. By 2025, the expression had changed: the pattern is perceived as clearer and more geometric, partly because certain color differences have stabilized while others have diminished over time and through use.

In its newly knitted phase, the pattern knitting was more irregular, with forms only faintly discernible. Through use, more defined geometric structures emerge instead, built through contrasts between the different colored yarns. At the same time, other areas have shifted from a more dissolved, watercolor-like expression, where colors seemed to blend into a more unified color character.

The transformation is not only due to color. The knitted structure has also changed through time and use, as the material has become more compacted. This contributes to the pattern now appearing denser and more graphic than in its original state.



*Sea buckthorn in seawater  
Undyed*

*Sea buckthorn in tap water  
Lilac  
Sea buckthorn in tap water  
Undyed individual stitches  
Rhubarb  
Lilac*

*Sea buckthorn in seawater  
Lilac in patterning  
Sea buckthorn in seawater*

*Lilac  
Rhubarb and lady's bedstraw in  
the patterning  
Lilac*

*Undyed*

## A New Design Philosophy

By introducing changeability into contexts where color and pattern expression traditionally strive for stability, *The Sweater* explores color beyond its given hue. The design example can be understood as part of a design philosophy that proposes change as a form of permanence, through adaptability and transformation.

This perspective opens up new relationships between design, consumption, and material expression. Instead of replacing garments to achieve variation, change can emerge through use. A single object can thus contain multiple expressions over time, reducing the need for material variation through new production.

The aim is to make visible existing conventions around color while formulating a design philosophy in which the mutable nature of color is an integrated component. It is not about choosing between static hues, but about designing for multiple expressions to emerge successively over time.

From this perspective, variation is created through interaction rather than through the replacement of objects. Change arises in use, where the garment becomes part of an ongoing relationship between environment, material and body. In this way, multiple expressions can be designed into a single object with more or less visibility, enabling variation without increased material consumption.

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