Green strategies to conserve the past and preserve the future of cultural heritage (GoGreen)

www.gogreenconservation.eu

Katrien Keune[1,2*], David Thickett[3], Silvia Prati[4], Edith Joseph[5], Loïc Bertrand[6], Arianna Traviglia[7], Austin Nevin[8], Caitlin Southwick[1,9], Maartje Stols-Witlox[10], Joel Taylor[11], Valentina Sabatini[12] & Claire Betelu[13]

GoGreen's participants: 1&10: Sander van Lith, Han Zhou, Aida Kalender, Meike Berkhout, Joen Hermans, Jorien Duivenvoorden, Laura Davoli; 2: Joosje van Bennekom, Gwendoline Fife, Julia Wagner; 3: Antanas Mėlinis; 4: Rocco Mazzeo, Giorgia Scitto, Maria Letizia Focarete, Chiara Gualandi, Emilio Catelli, Francesca Ramacciotti; 5: Patrycja Petrasz, Qing Wu; 6:Emmanuel Baranger, Serge Cohen, Mathieu Thoury, Rémi Métivier, Laure Cazals, Joanne Xie; 7:Giulia Franceschin, Roberta Zanini, Mauro Moglianetti; 8: Aviva Burnstock, Clare Richardson; 9: Nur Elmahrakawy, Daniela Molinari; 12: Carmine Lucignano; 13: Thierry Lalot; Jerzy Haber Institute of Catalysis and Surface Chemistry PAS: Łukasz Bratasz, Marcin Strojecki, Sergii Antropov, Marcin Bury, Magdalena Soboń, Łukasz Berger, Sonia Bujok.

Affiliations: 1. Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, The Netherlands; 2. Conservation & Science Department, Rijksmuseum Amsterdam, The Netherlands; 3. English Heritage London, UK; 4. Department of Chemistry, University of Bologna Bologna, Italy; 5. Haute Ecole Arc Conservation Restauration, HES-SO University of Applied Sciences and Arts Western Switzerland Neuchatel, Switzerland; 6. Université Paris-Saclay, ENS-Paris Saclay, CNRS, PPSM, Gif-sur-Yvette, France; 7. Centre For Cultural Heritage Technology, Fondazione Istituto Italiano di Tecnologia Venice, Italy; 8. Department of Conservation, Courtauld Institute of Art London, UK; 9. Ki Culture and Sustainability in Conservation, Amsterdam, The Netherlands; 10. Conservation and Restoration, University of Amsterdam, Amsterdam, The Netherlands; 11. Norwegian Institute for Cultural Heritage Research, Oslo, Norway; 12. SAATI S.p.A., Como, Italy; 13. School of Art History and Archeology, HiCSA Laboratory, Paris I Pantheon-Sorbonne University Paris, France. * corresponding author: k.keune@uva.nl

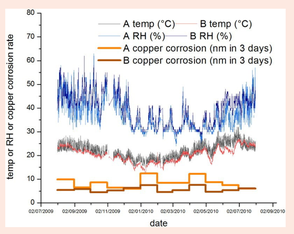
The GoGreen project (2022-2026) aims to:

1. Improve definition what '**green**' means in conservation.
2. Develop **preventive conservation** practices and a 'green thinking' **decision-making model**.
3. Develop **green materials and methods** inspired by historical recipes and methods, biological processes and green chemistry practices.
4. Create new methodologies to evaluate greenness, including a prototype **digital web-app** that helps conservators evaluate the environmental impact of their actions.
5. Create **policies** for the use of green conservation in the field.
6. Develop **education modules** and **course material** on green conservation for stakeholders.

Tools for greener preventive conservation

Limestone statue, archival documentation

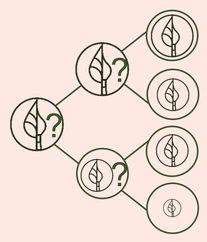
Oil paint models

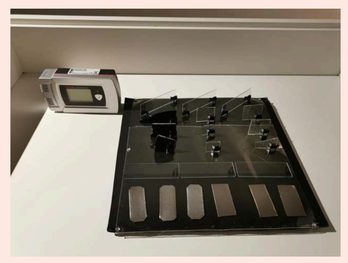


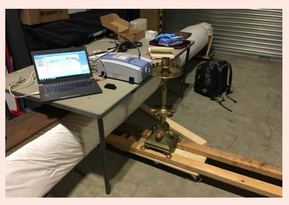
Predicted copper corrosion rate. Thickett, Stud. Conserv., 63, 262 (2018).

Damage function for silver: Ag = 45.30 HS +1.46 NO + 3.90 SO + 4.81 HCl + 0.20 O3 +1.04 RH + 0.79 T

- *Ag is the silver tarnish rate in Å (0.1 nm) per 30 days*
- *HS is the hydrogen sulphide concentration in ppb*
- *SO is the sulphur dioxide concentration in ppb*
- *HCl is the hydrogen chloride concentration in ppb*
- *O3 is the ozone concentration in ppb*
- *RH is the mean RH, %*
- *T is the mean temperature, °C*


Decision-making model(s) will help conservation overcome barriers towards greener practices.

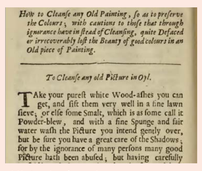

Glass & steel samples for monitoring deterioration

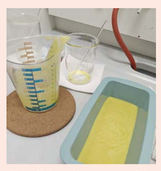

Non-invasive analyses

New damage functions for glass, metal, limestone and paintings to aid in decision-making & 'Green thinking' decision-making model.

go green

Greener cleaning & consolidation methods


Historical recipe


Traditional soapmaking

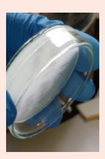
Green solutions based on historical recipes

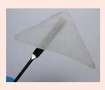
Biopassivation on Osiris bronze statuette

Desalination treatment of iron artefacts by fungi

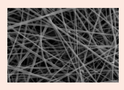
Consolidation of glass with silica nanoparticles

Copper, iron & glass stabilization based on green synthesis





New green gel & tissue carriers

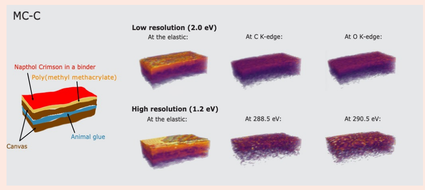



Altered organic coatings on mechanical watch innards

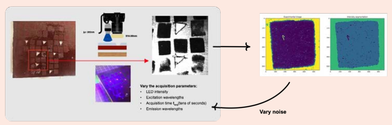

Removal of silver tarnish

Paint & metal cleaning with bio-based systems

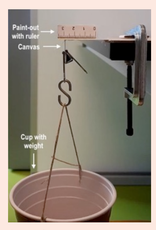
Methods for greener solutions & web-app prototyping

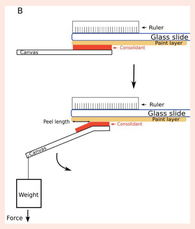


Semi-quantitative 3D X-ray Raman and CT imaging



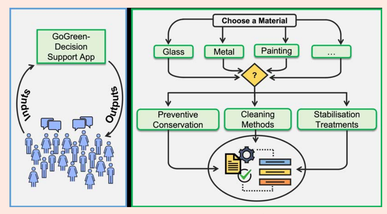
Photoluminescence spectral imaging





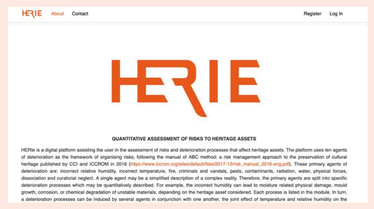
Low-key assessment of consolidants. Kollaard et al., Research project article PI, UvA, Amsterdam, 2018

New strategies to evaluate products and treatments



Web-app prototyping to support in selecting appropriate green approaches & materials

GoGreen-DSA (Decision Support App)



Expand the digital decision-supporting platform HERIe

Digital tool for preventive conservation

Funded by the European Union

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