

Brisbane Mural Environmental Monitoring

3/18/25-10/15/25

Site & Studio Conservation
Samantha Emmanuel and Kiernan Graves

Scope of Work (6 month overview)

- **Timeline:**

- *February 2022*: Treatment
- *December 2023*: Deterioration noticed
- *April 2024*: Condition Assessment
- *August 2024*: Treatment Testing & Condition Assessment
- *March 2025 - Oct 2025 (ongoing)*: Environmental Monitoring

- **Environmental study:**

- Monitor for at least a year, recording T/RH/Dew Point/Heat Index
- Understand correlation between environment and deterioration of materials
- Dual purpose: will show what time of year is best to work/carry out treatment AND to understand possible materials to withstand environmental conditions.

- **Results to date:**

- 6 months of data where data correlated with surface temperature readings.
- Severe heat and condensation cycling throughout the 6 month period.
- **Extreme Heat is Cumulative**, resulting materials behavior under extreme/unusual environmental conditions.

- **Potential options:**

- Removal of added materials is possible: recently developed treatment materials (University of Florence Italy) can remove what we added in 2022.
- How to repair old damage with lasting effect (i.e. selection of coatings/adhesives that can withstand the environmental conditions present).
- Currently, known conservation grade materials do not have these properties, further research is needed. Partnership with 3M is in development.
- Potential infrastructure options for shading mural.

Mural conditions:

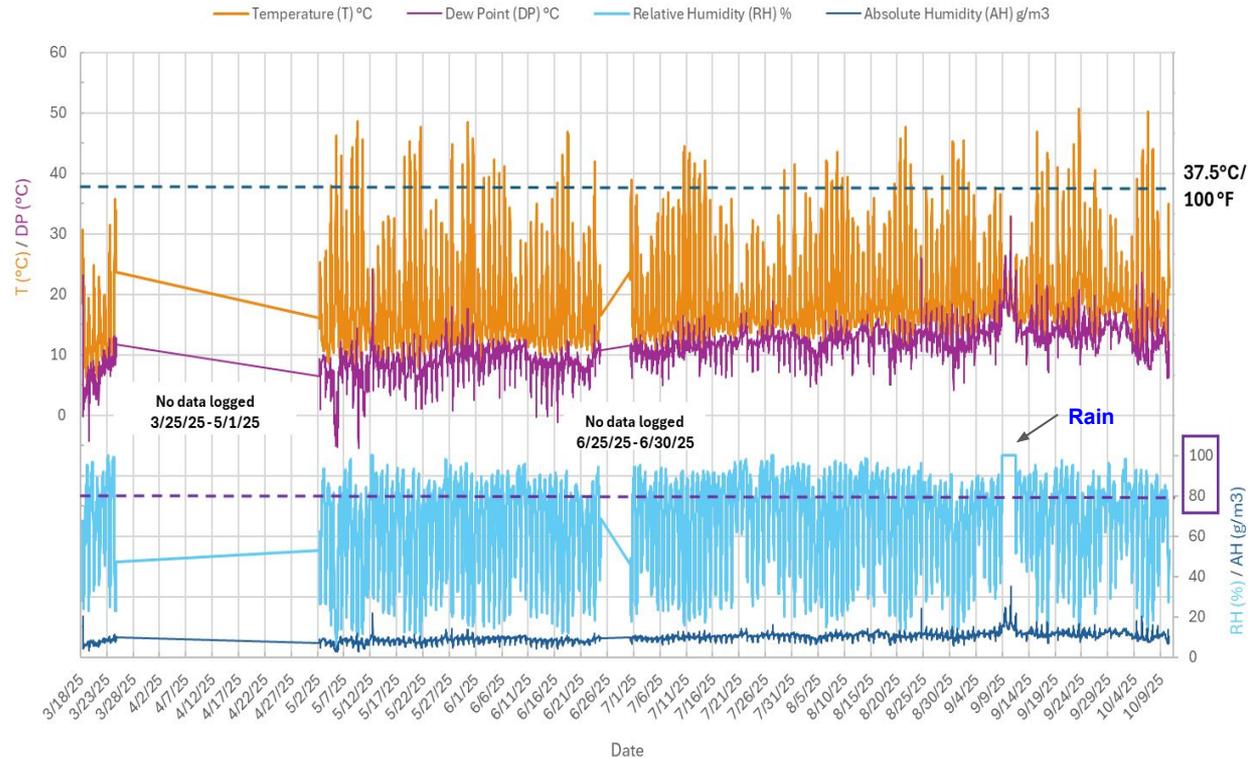
- Southwest facing
- Daylight Savings: sun is in the sky for longer, does not disappear behind the ridge line until late evening

Environmental Conditions:

- **Air Temp**
 - Often goes above 100°F
 - Fluctuates between 40/50°F and 110°F+
 - With heat index these values can be considered to be higher
- **Relative Humidity**
 - Daily highs between 80-100%
 - Daily lows between 10-20%
- **Dew Point**
 - Condensation occurs daily
- **Surface Temp monitored by infrared thermographer, data on following pages**

Data from Environmental Monitor with sensor to measure: Ambient Temperature, Relative Humidity, Dew Point & Heat Index

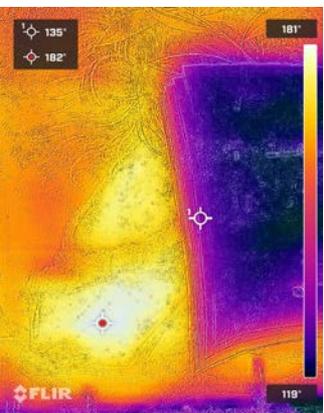
Brisbane EnvMon 3/18/25 - 10/10/25





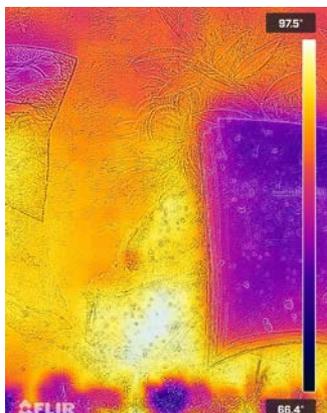
Surface Temperatures: FLIR

(Hotter surface temperatures correspond with darker colors on the paint surface)



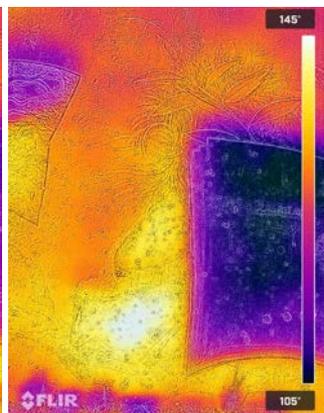
3/24/25 4:49pm;

Surface Temp High of 181°F
(Air Temp High of 96.4°F at
1:50pm)



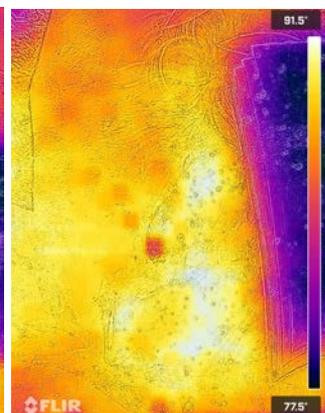
6/24/25 6:09pm

Surface Temp High of 97.5°F
(Air Temp High of 76.6°F at
2:10pm)



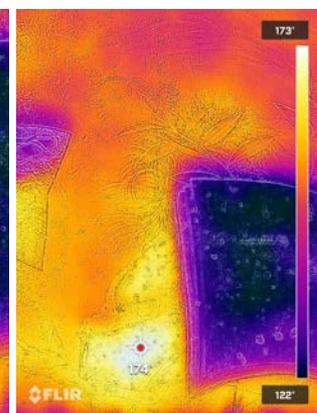
8/22/25 5:30pm

Surface Temp High of 145°F
(Air Temp High of 106.7°F at
3:30pm)



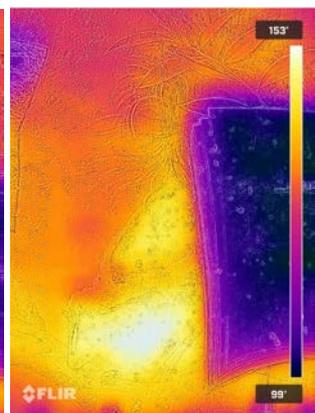
9/12/25 6:28pm

Surface Temp High of 91.5°F
(Air Temp High of 78.1°F at
2:40pm)
(Mural completely in shade at
time of imaging)



9/23/25 4:47pm

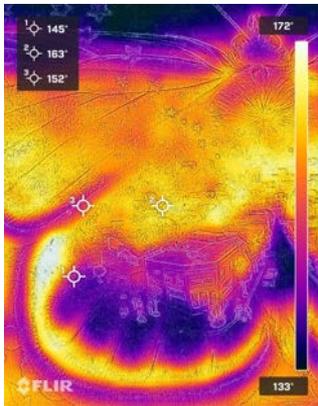
Surface Temp High of
173°F
(Air Temp High of 123.3°F
at 1:30pm)



10/10/25 4:08pm

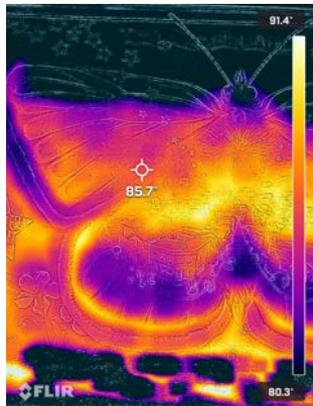
Surface Temp High of
153°F
(Air Temp High of 90.7°F
at 12:40pm)

Surface Temperatures: FLIR



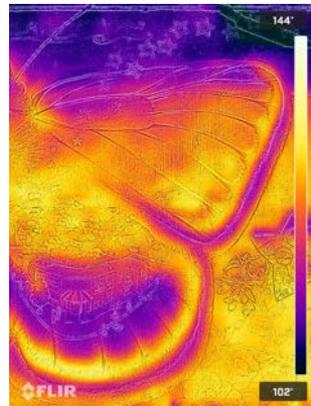
3/24/25 4:51pm

Surface Temp High 172°F
(Air Temp High of 96.4°F at 1:50pm)



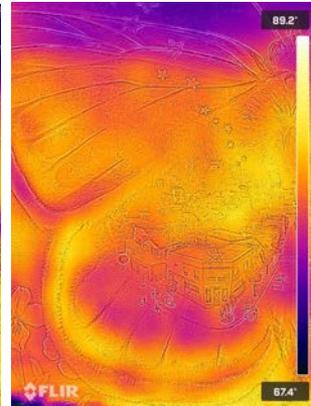
6/24/25 6:04pm

Surface Temp High 91.4°F
(Air Temp High of 76.6°F at 2:10pm)



8/22/25 5:26pm

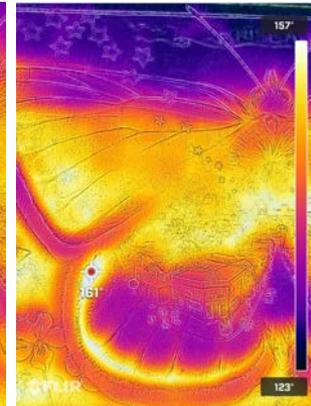
Surface Temp High 144°F
(Air Temp High of 106.7°F at 3:30pm)



9/12/25 6:29pm

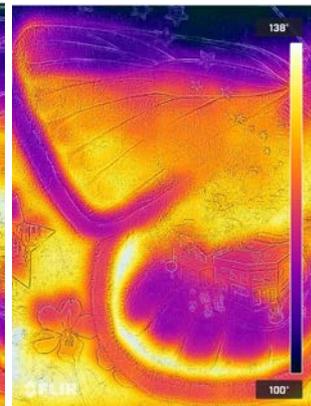
Surface Temp High 89.2°F
(Air Temp High of 78.1°F at 2:40pm)

(Mural completely in shade at time of imaging)



9/23/25 4:47pm

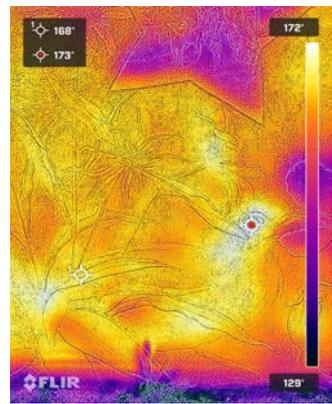
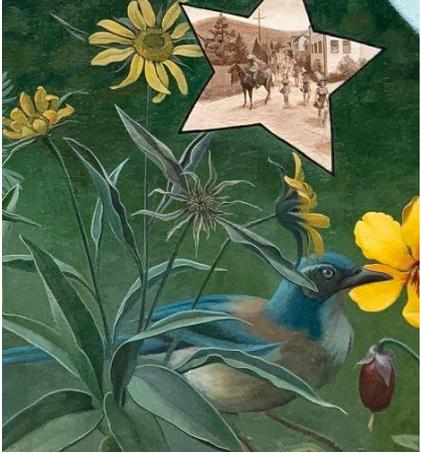
Surface Temp High of 157°F
(Air Temp High of 123.3°F at 1:30pm)



10/10/25 4:07pm

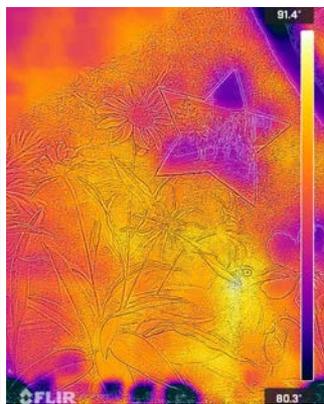
Surface Temp High of 143°F
(Air Temp High of 90.7°F at 12:40pm)

Surface Temperatures: FLIR



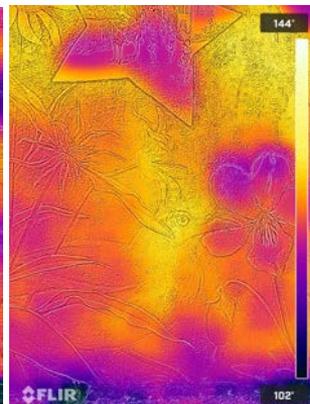
3/24/25 4:50pm

Surface Temp High 172°F
(Air Temp High of 96.4°F
at 1:50pm)



6/24/25 6:09pm

Surface Temp High 91.4°F
(Air Temp High of 76.6°F at
2:10pm)



8/22/25 5:30pm

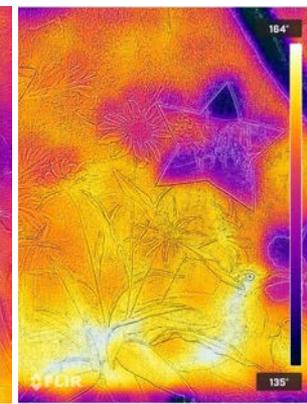
Surface Temp High 144°F
(Air Temp High of 106.7°F
at 3:30pm)



9/12/25 6:30 pm

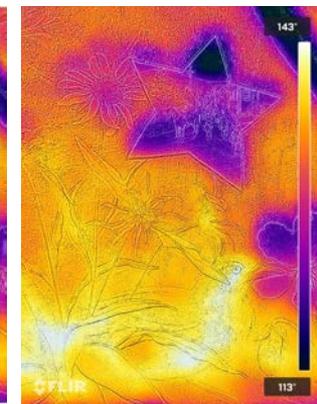
Surface Temp High 86.7°F
(Air Temp High of 78.1°F at
2:40pm)

(Mural completely in shade at
time of imaging)



9/23/25 4:44pm

Surface Temp High of 164°F
(Air Temp High of 123.3°F at
1:30pm)



10/10/25 4:07pm

Surface Temp High of
143°F
(Air Temp High of 90.7°F at
12:40pm)

Condition Issues 2021

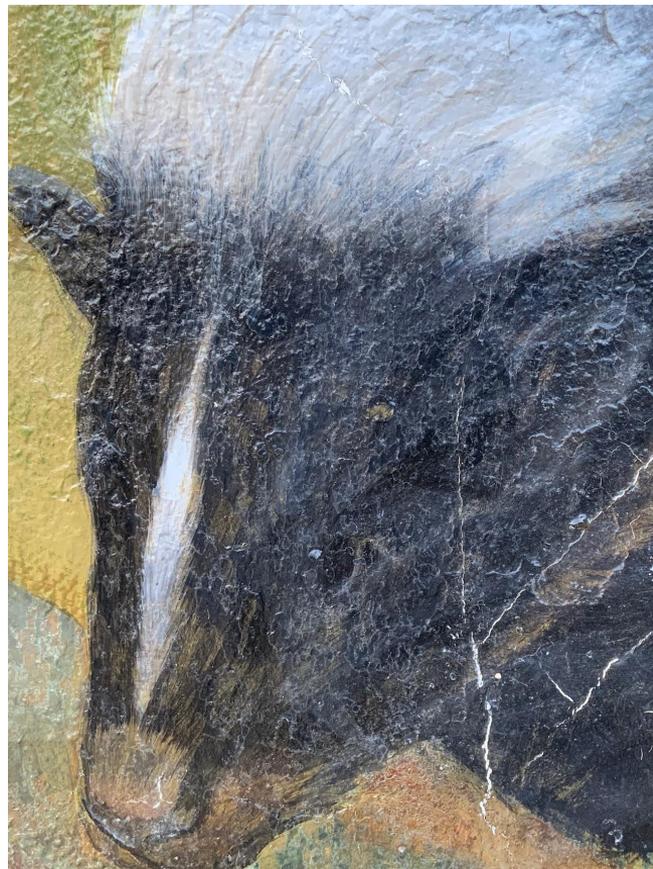


Condition Issues 2021

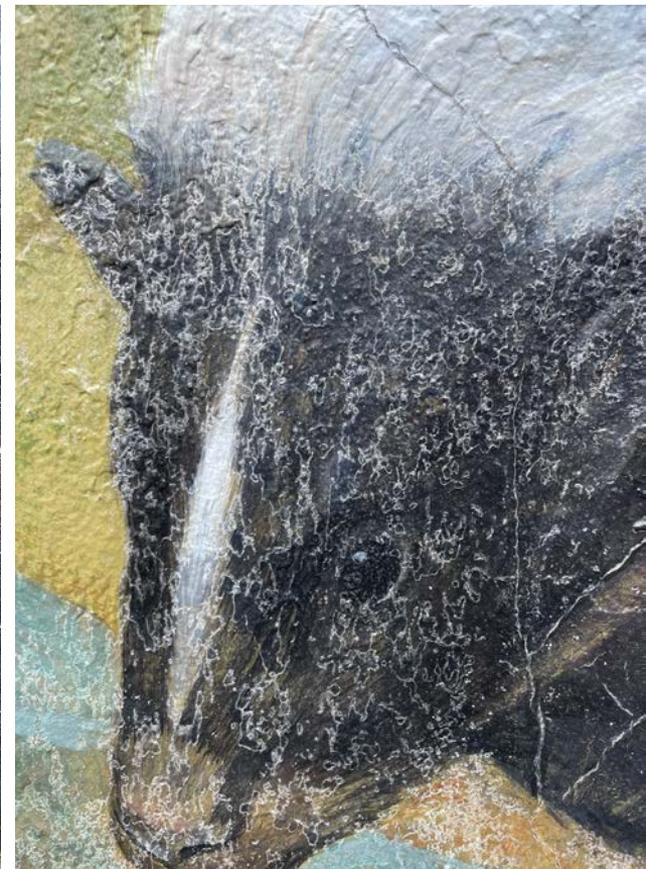




Before Treatment
Mar 2022



After Treatment
Mar 2022



April 2024



Before Treatment
Mar 2022



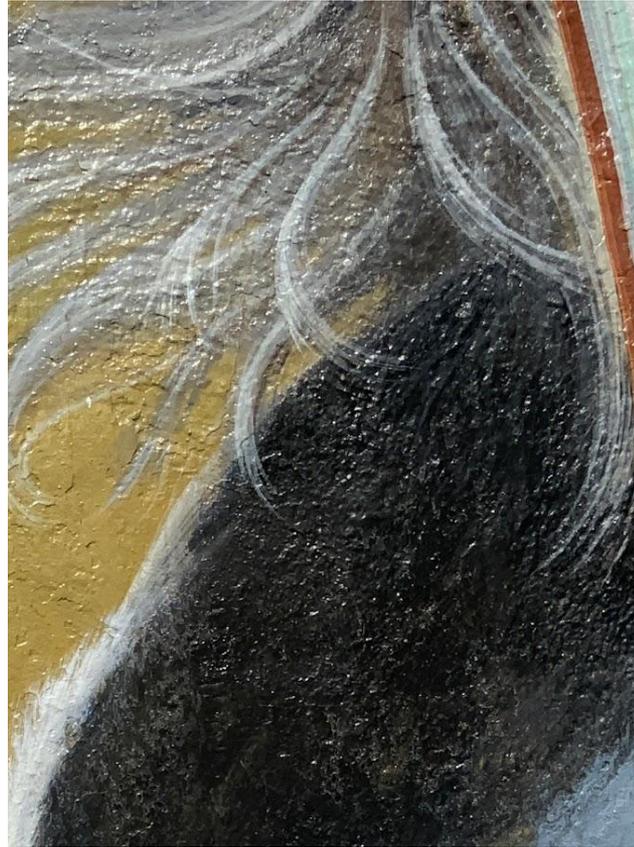
After Treatment
Mar 2022



April 2024



Before Treatment
Mar 2022



After Treatment
Mar 2022



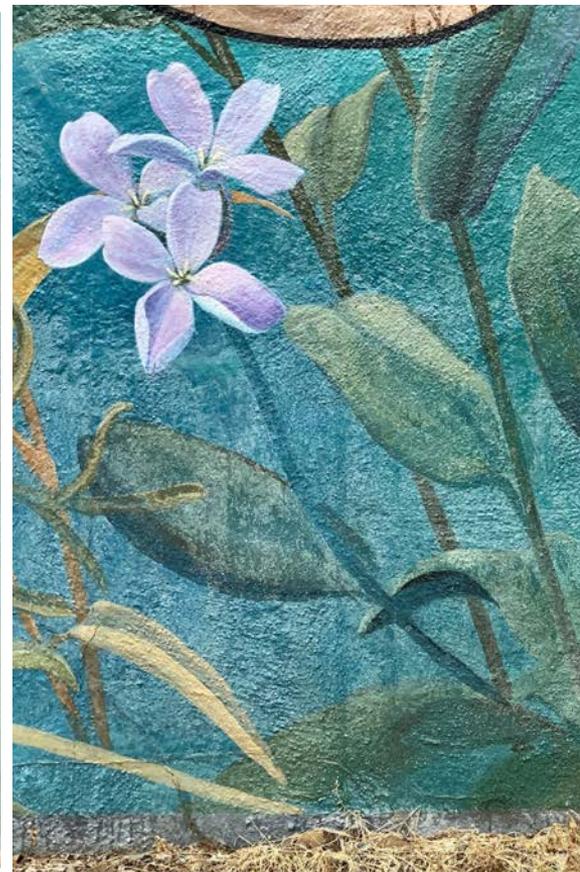
April 2024



Before Treatment
Oct 2021



After Treatment
Mar 2022



Feb 2024



Before Treatment
Mar 2022

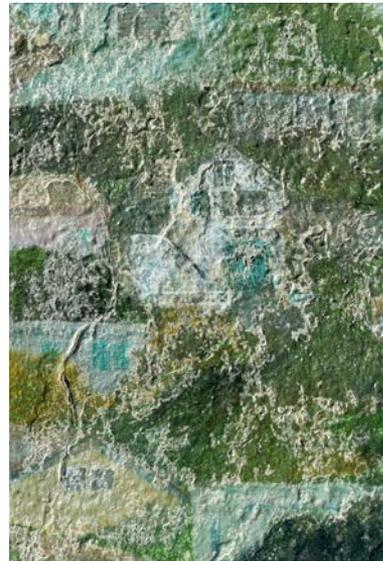
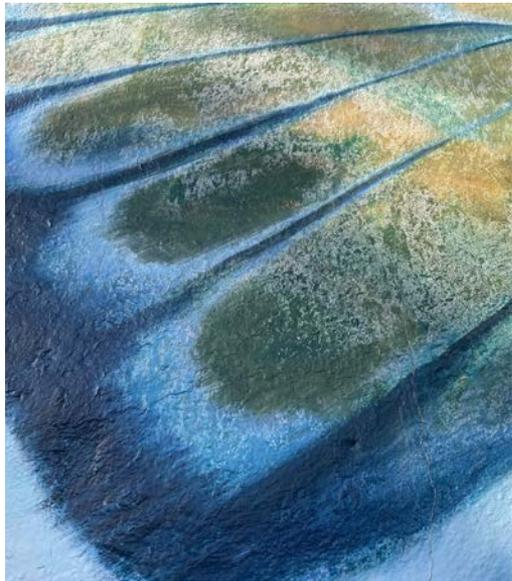


After Treatment
Mar 2022



April 2024

Coating Condition Issues 2025



Other Condition Issues 2024-2025



March 2022



April 2024



Sept 2025



March 2022



April 2024



Sept 2025

Few examples of flaking paint lifting away from the substrate



Large gash in paint layer noted in August 2025



Splashes of sandy dirt/mud (cement?) on surface.