Supplementary Material:
Biigle 2.0 - Browsing and Annotating Large Marine Image Collections

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1 SUPPLEMENTARY DATA

1.1 Image Manipulation

Let I be an arbitrary RGB image and $p_{x,y}^{R,G,B}$ a pixel at position x, y

1.1.1 Brightness/Contrast

Let $\mathcal{B} \in [-1, 1]$ be the brightness adaption value and $\mathcal{C} \in [-1, 1]$ the contrast adaption value.

$$p_{x,y}^{R,G,B} = \begin{cases} (p_{x,y}^{R,G,B} + \mathcal{B} - 0.5)/(1 - \mathcal{C}) + 0.5 & \text{for } \mathcal{C} > 0 \\ (p_{x,y}^{R,G,B} + \mathcal{B} - 0.5)/(1 - \mathcal{C}) + 0.5 & \text{else} \end{cases} \forall x, y, R, G, B \tag{S1}$$

1.1.2 Single Channel Brightness

see equation S1 just for R,G or B.

1.1.3 Hue

Let $\mathcal{H} \in [-1, 1]$ be the hue adaption value. The RGB image is transformed to the HSV color space.

$$\mathcal{H}+ = (360 + \mathcal{H} * 180)\%360$$

1.1.4 Saturation

Let $\mathcal{S} \in [-1, 1]$ be the hue adaption value.

$$\text{maxC} = (\max(px, y^R, px, y^G, px, y^B)$$

$$p_{x,y}^{R,G,B} = \begin{cases} (p_{x,y}^{R,G,B} + (\text{maxC} - p_{x,y}^{R,G,B}) * (1 - 1/(1 + \epsilon - \mathcal{S})) & \text{for } \mathcal{S} > 0 \\ (p_{x,y}^{R,G,B} + (\text{maxC} - p_{x,y}^{R,G,B}) * -\mathcal{S} & \text{else} \end{cases} \forall x, y, R, G, B$$

1.1.5   Vibrance

$$\text{maxC} = (\max(px, y^R, px, y^G, px, y^B)$$

$$\alpha = \text{maxC} - (px, y^R + px, y^G + px, y^B)/3) * (-\mathcal{V} * 3)$$

$$p_{x,y}^{R,G,B} = p_{x,y}^{R,G,B} * (1 - \alpha) + [\text{maxC}, \text{maxC}, \text{maxC}] * \alpha$$

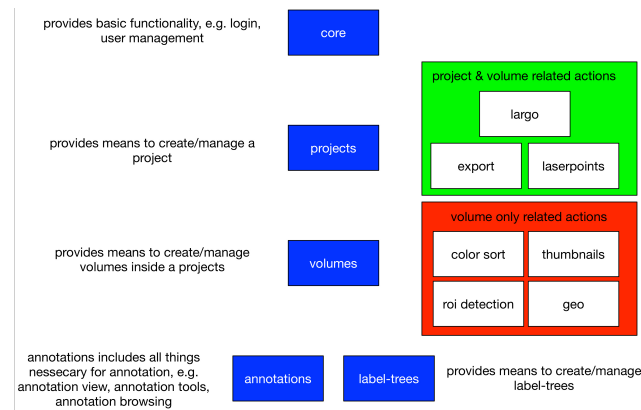## 1.2   Software Modules

Figure S1. As BIIGLE 2.0 is a modular software it consists of many modules which are depicted here. The main modules are the blue ones, while the red ones are actions related to volumes and the green ones actions related to projects and volumes.