

## Supplementary 1. **Calculation of insect nitrogen available to plants through EIPF**

The estimated amount of atmospheric nitrogen that is fixed in an ecosystem varies between 10-160 kg/ha/yr (1). Approximately 31% of this fixed, plant incorporated, nitrogen is then lost to insect herbivores (2). Therefore the amount of plant nitrogen lost through insect herbivory varies between 3.1kg/ha/yr ( $10\text{kg/ha/yr} \times 0.31$ ) to 49.6kg/ha/yr ( $160\text{kg/ha/yr} \times 0.31$ ). It is estimated that insects are able to incorporate 50% of ingested nitrogen (3), therefore the amount of plant nitrogen incorporated into insect biomass varies between 1.55kg/ha/yr ( $10\text{kg/ha/yr} \times 0.31$ ) to 24.8kg/ha/yr ( $160\text{kg/ha/yr} \times 0.31$ ).

We then estimated that approximately 30% of soil insects may become infected by EIPF (4) however this number could be as high as 66%. Therefore, the amount of insect derived nitrogen potentially provided to plants by EIPF varies between 0.465kg/ha/yr ( $1.55\text{kg/ha/yr} \times 0.30$ ) and 7.44kg/ha/yr ( $24.8\text{kg/ha/yr} \times 0.30$ ).

We then calculated that the percentage of the total fixed nitrogen provided to plants through EIPF as 4.65%. That is  $0.93\text{kg/ha/yr/insect derived nitrogen provided to plants through EIPF}$  divided by  $10\text{kg/ha/yr average atmospheric fixed nitrogen}$ . Similarly,  $7.44\text{kg/ha/yr insect derived nitrogen provided to plants through EIPF}$  divided by  $160\text{kg/ha/yr average atmospheric fixed nitrogen in an ecosystem}$  is also 4.65%.

References:

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