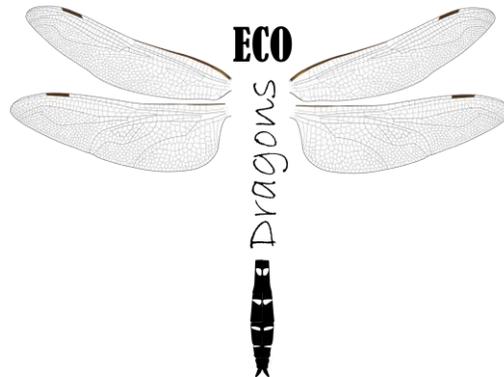


Supplementary material: Appendix 1

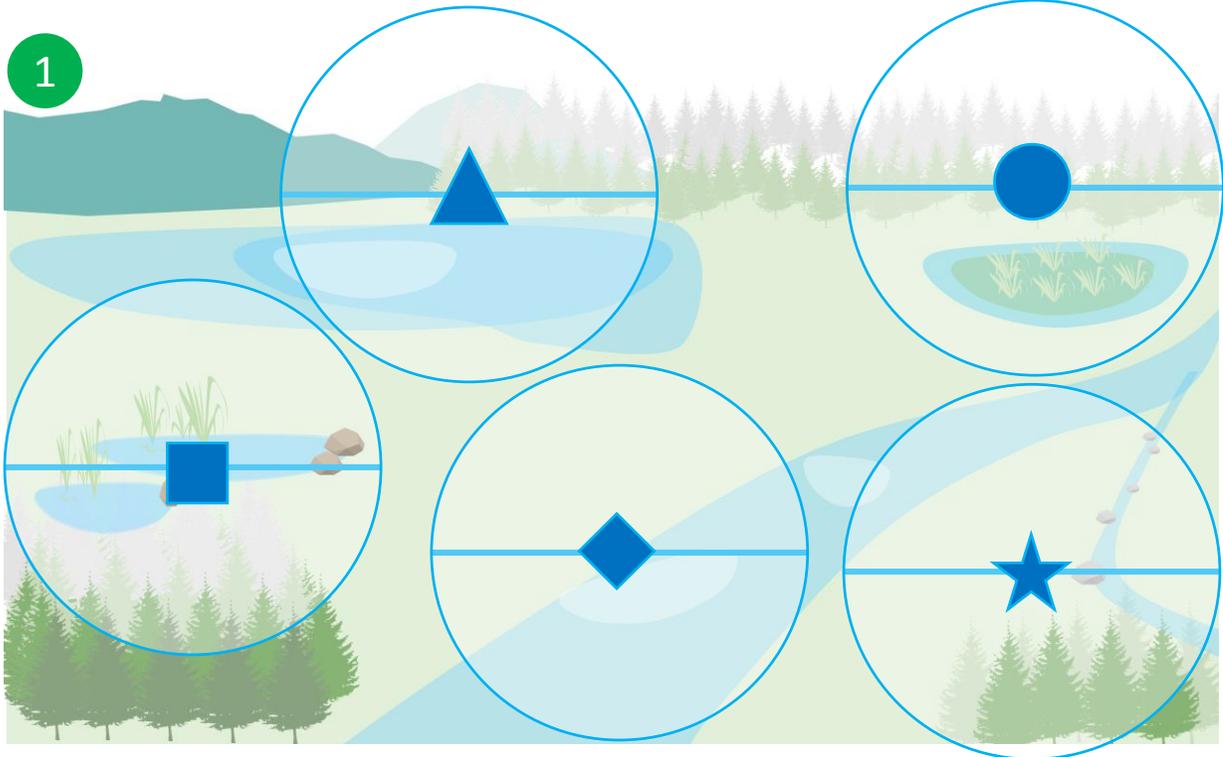
Khelifa R. & Mahdjoub H. (2021). EcoDragons: a game for environmental education and public outreach. *Insects*

Gameplay example



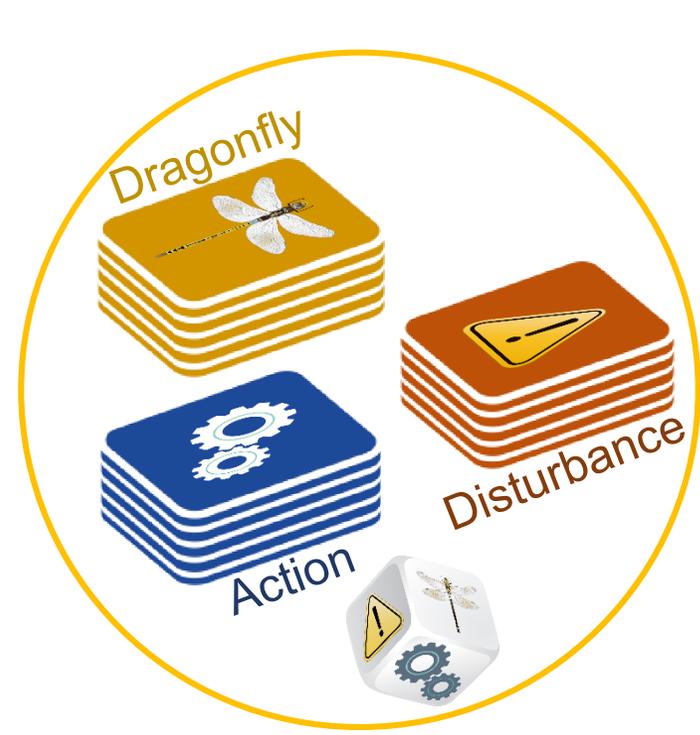


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Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
2 0	3 0 0 0	4 0



Gameplay

- The game starts with five habitats, three decks of cards, and a die.
- The score for habitat occupied, environmental disturbances solved, and conservation priority are shown for each player.
- Environmental disturbances have three levels (mild, strong and severe) and players are rewarded accordingly
- Conservation priority score is the sum of priorities of all species occupying a habitat

Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
2 0	3 0 0 0	4 0

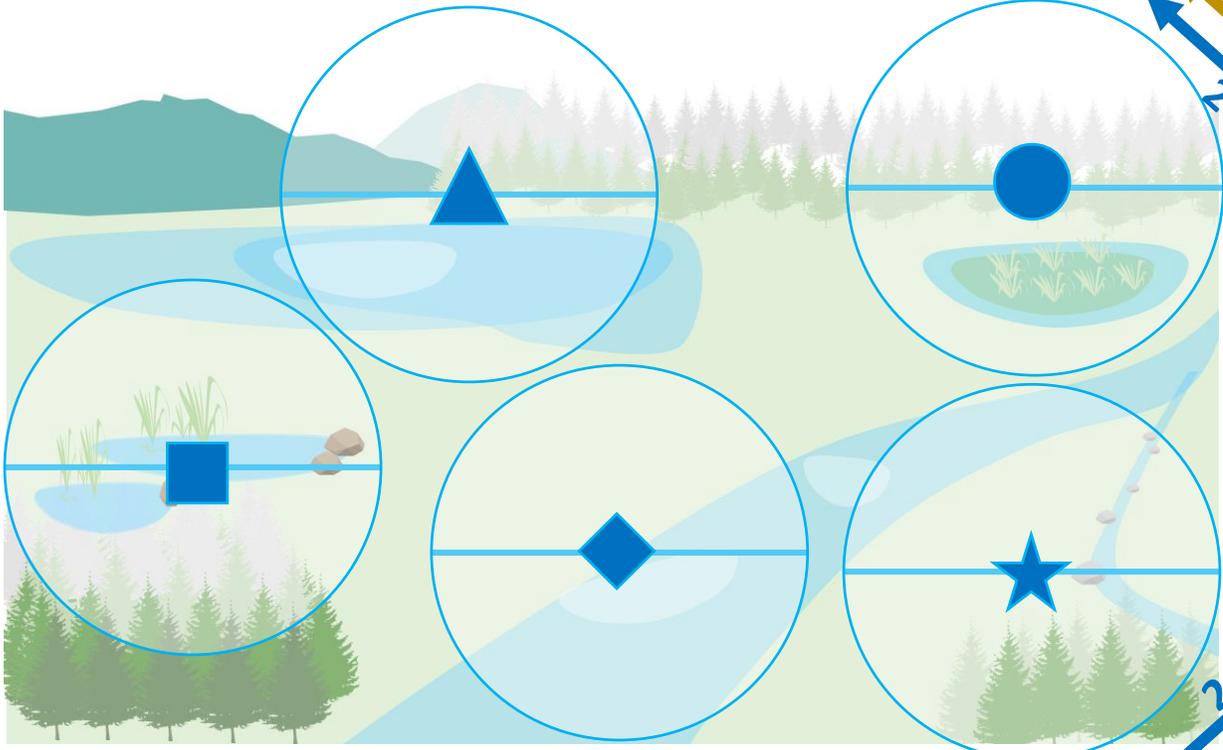


Player 1



1

Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
0	0 0 0	0



3 cards

2 cards

Dragonfly

Action

Disturbance

Gameplay

1 After shuffling the decks, five cards are drawn for each player at the start of the game: three dragonfly cards and two action cards



Player 2



1

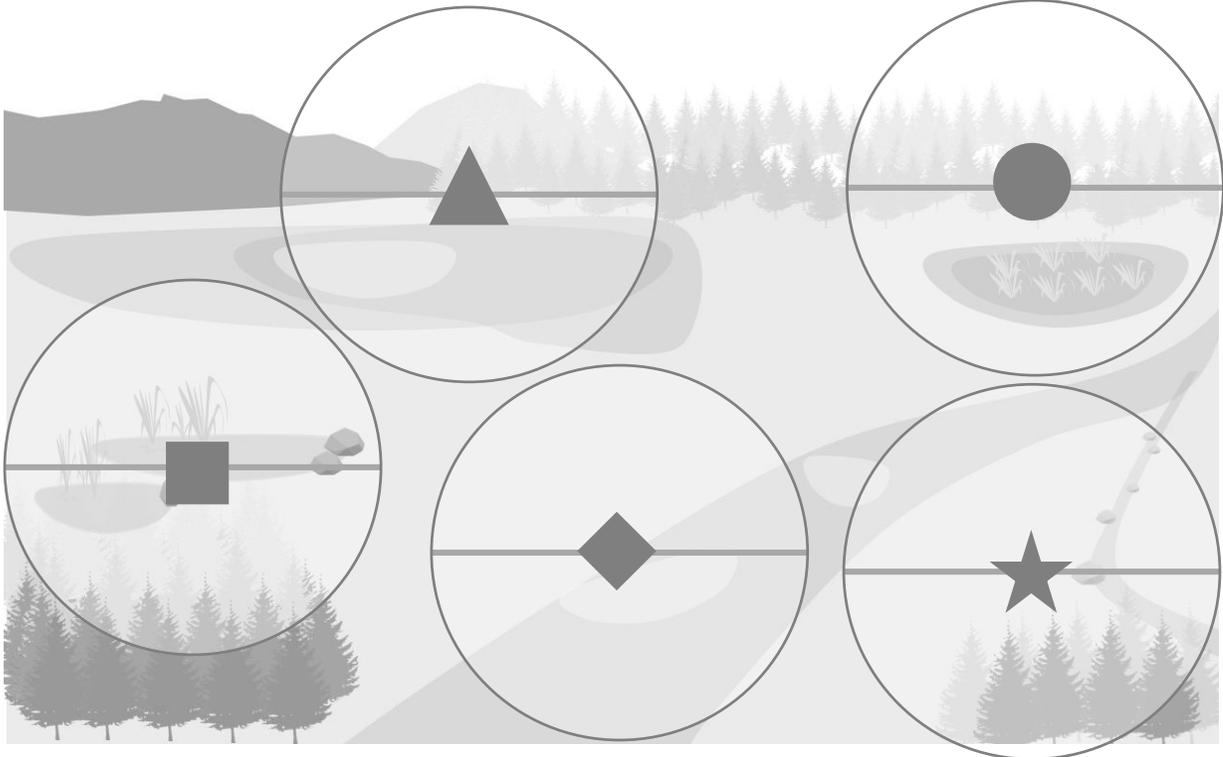
Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
0	0 0 0	0



Player 1

 Lesser Emperor <i>Anax parthorippe</i> 6 Body Priority: 6 Conservation Status: Stable Range: North America	 Tweedle Emerald <i>Zonotrichia albicollis</i> 4 Body Priority: 4 Conservation Status: Stable Range: North America	 Black-tailed Skimmer <i>Petrolia amabilis</i> 4 Body Priority: 4 Conservation Status: Stable Range: North America	 Evolutionary +5 Adaptation Increase resistance of a species by 5. The card will also be used to occupy an unoccupied habitat.	 Savvy -3 Parasitism Reduce environmental suitability by 3 points. Does the card below the gears card in the equipment set that the species has clear resistance.
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1



Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
0	0 0 0	0

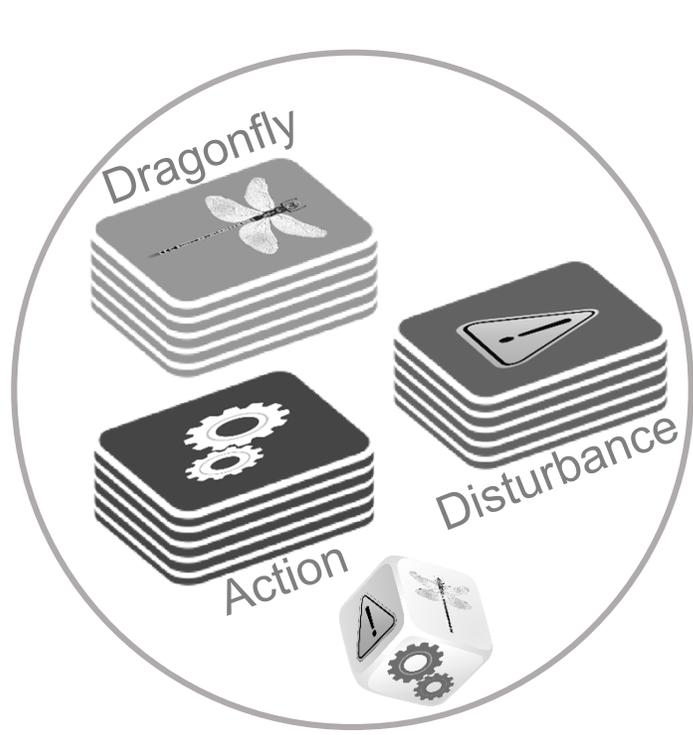


Player 2

 Blue Emperor <i>Anax imperator</i> 6 Body Priority: 6 Conservation Status: Stable Range: North America	 Common Goldrider <i>Cordulegaster boltonii</i> 6 Body Priority: 6 Conservation Status: Stable Range: North America	 Four-spotted Chaser <i>Libellula quadrimaculata</i> 4 Body Priority: 4 Conservation Status: Stable Range: North America	 Weather 2 Frost Freeze the player for a round. When you play this card, you play and draw the other card.	 Predation 5 Hawk Set a species to a minimum score value of 5.
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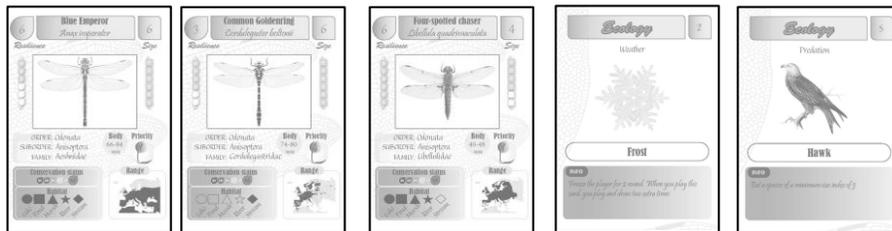
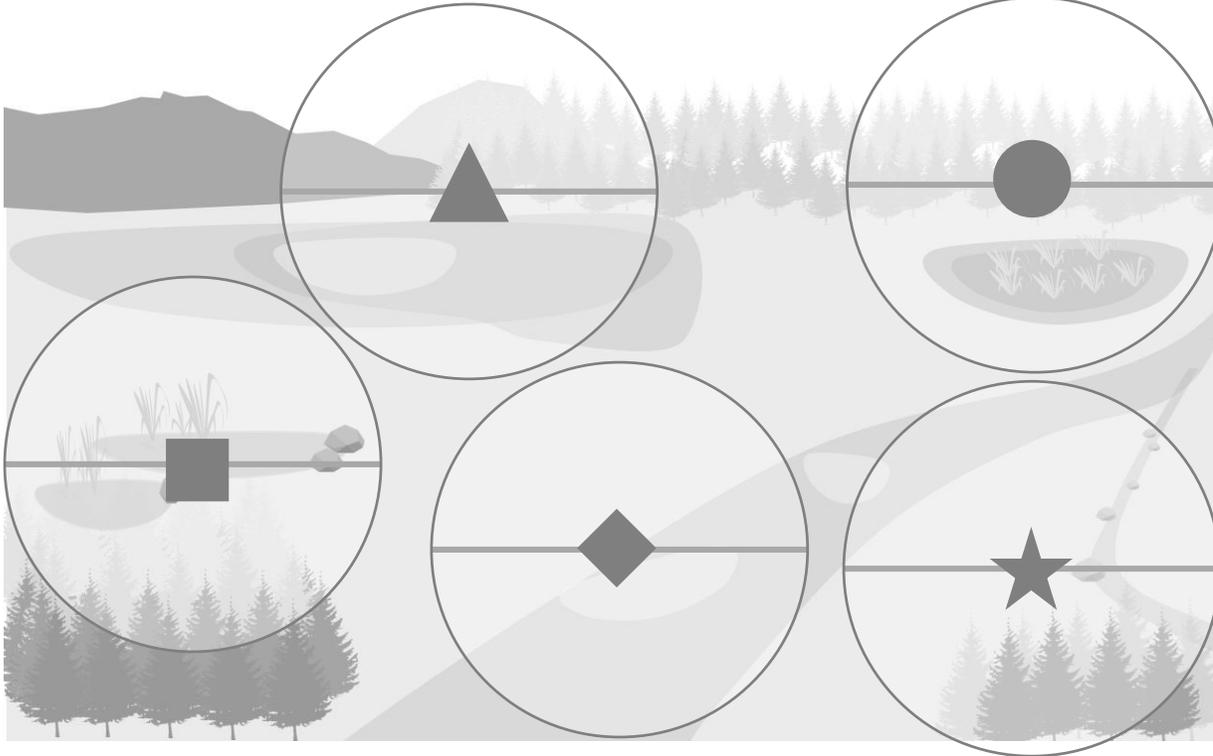
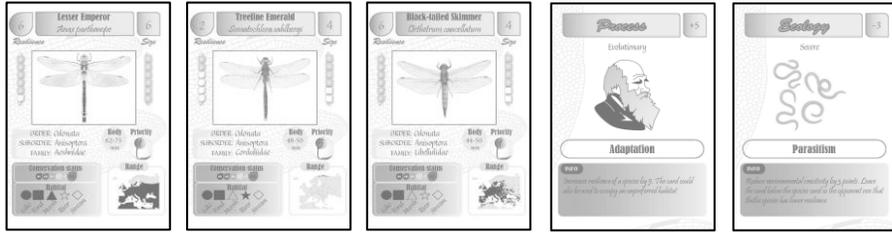
1

Habitat occupied	Disturbances solved	Conservation priority
□ △ ○ ◇ ☆	+2 +4 +6	
0	0 0 0	0



1 **Gameplay**

Each player has five cards (three dragonfly cards and two action cards)



Habitat occupied: 0

Disturbances solved: +2, +4, +6 (0, 0, 0)

Conservation priority: 0

Dragonfly

Action

Disturbance

1

Gameplay

- Each player draws a card then plays a card (or pass)
- Before drawing a card, the die has to be rolled to determine which deck should be drawn (dragonfly, action, or disturbance)

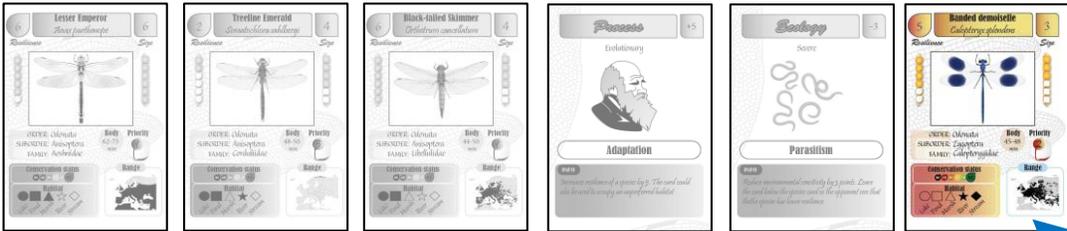
1 Here, the roll of die resulted in a dragonfly logo, which means that Player 1 has to draw a dragonfly card

Habitat occupied: 0

Disturbances solved: +2, +4, +6 (0, 0, 0)

Conservation priority: 0

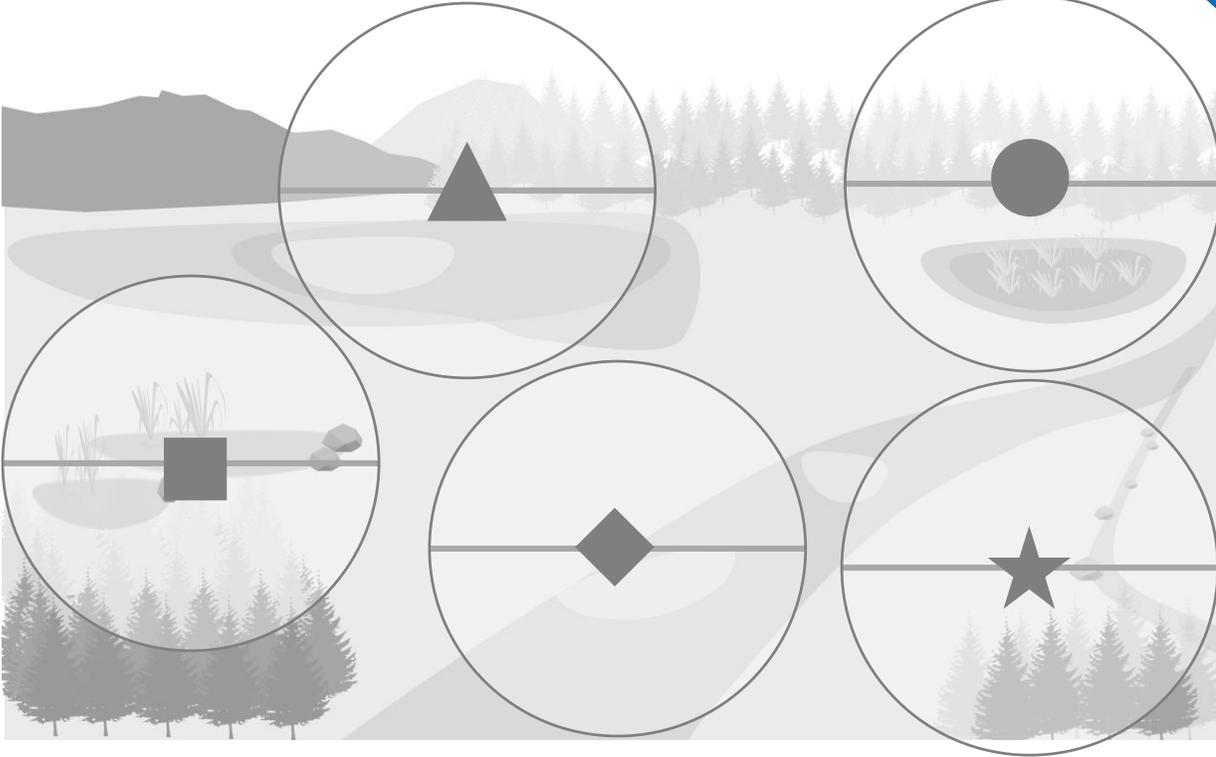
Player 1



Habitat occupied: 0

Disturbances solved: 0, 0, 0

Conservation priority: 0



1

Dragonfly

Action

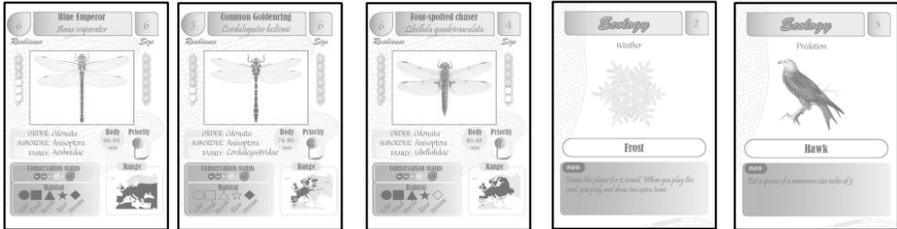
Disturbance

Gameplay

1 Player 1 draws a dragonfly card

- Player 1 obtained the 'Banded Demoiselle'

Player 2



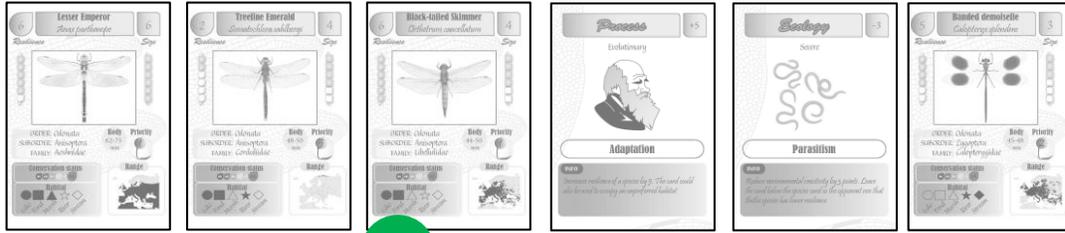
Habitat occupied: 0

Disturbances solved: 0, 0, 0

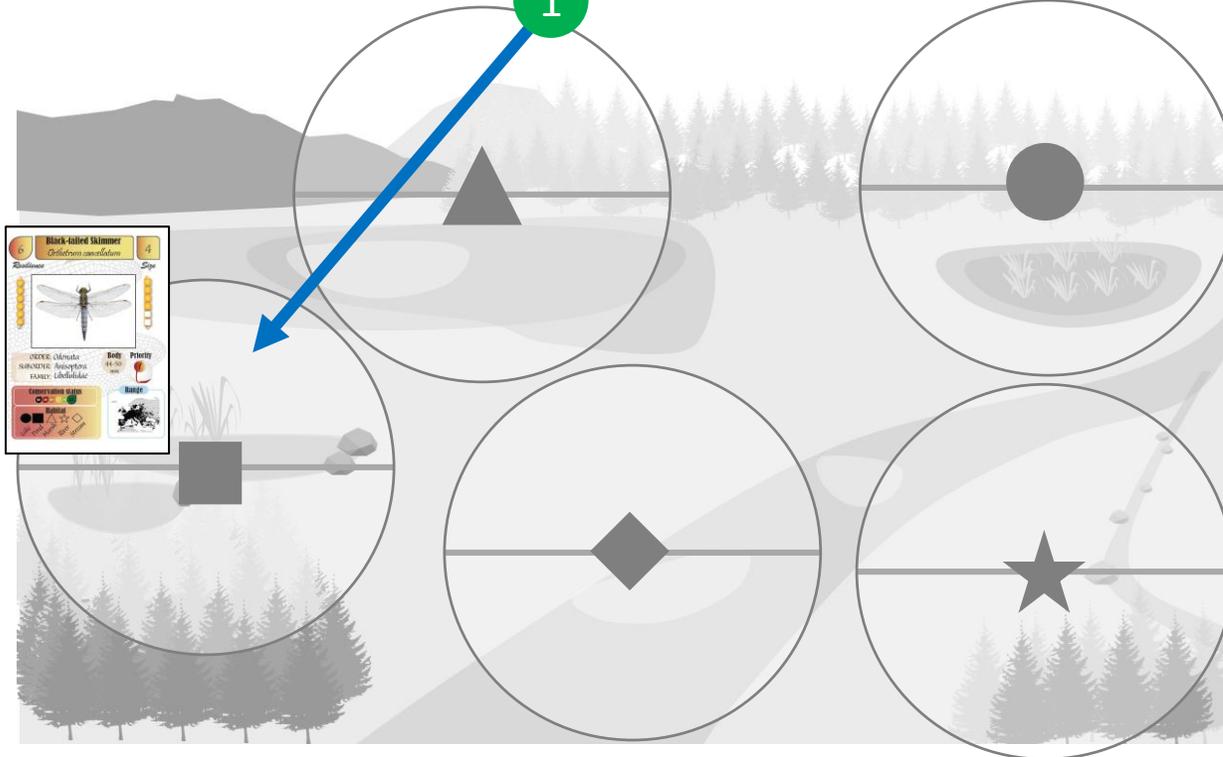
Conservation priority: 0



Player 1



1



Habitat occupied: 1

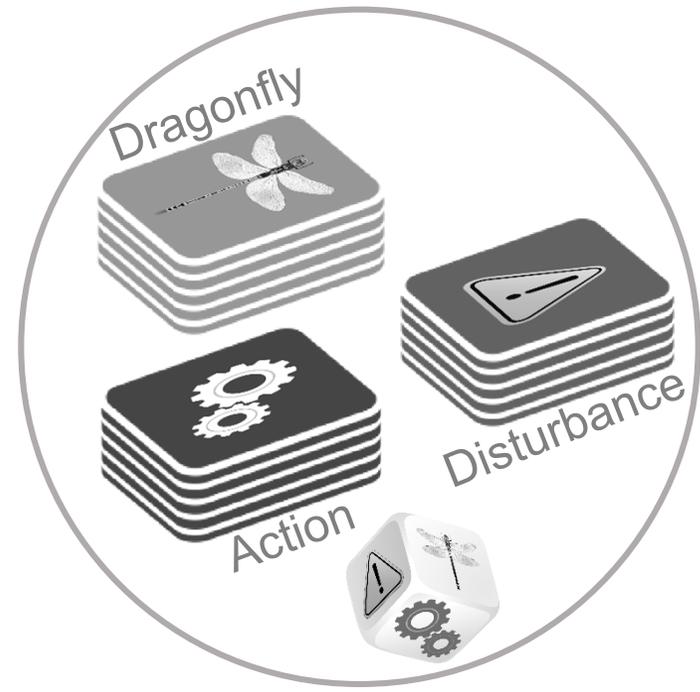
Disturbances solved: 0 0 0

Conservation priority: 1

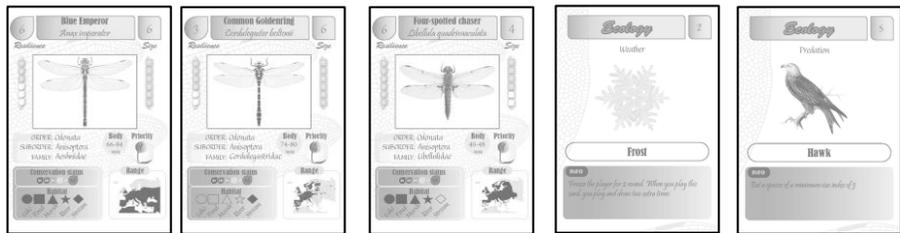
Gameplay

1 Player 1 plays one card (or could pass)

- Here, Player 1 placed a dragonfly (Black-tailed Skimmer) in the square habitat



Player 2

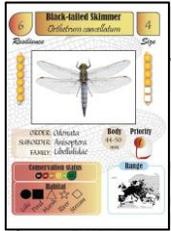
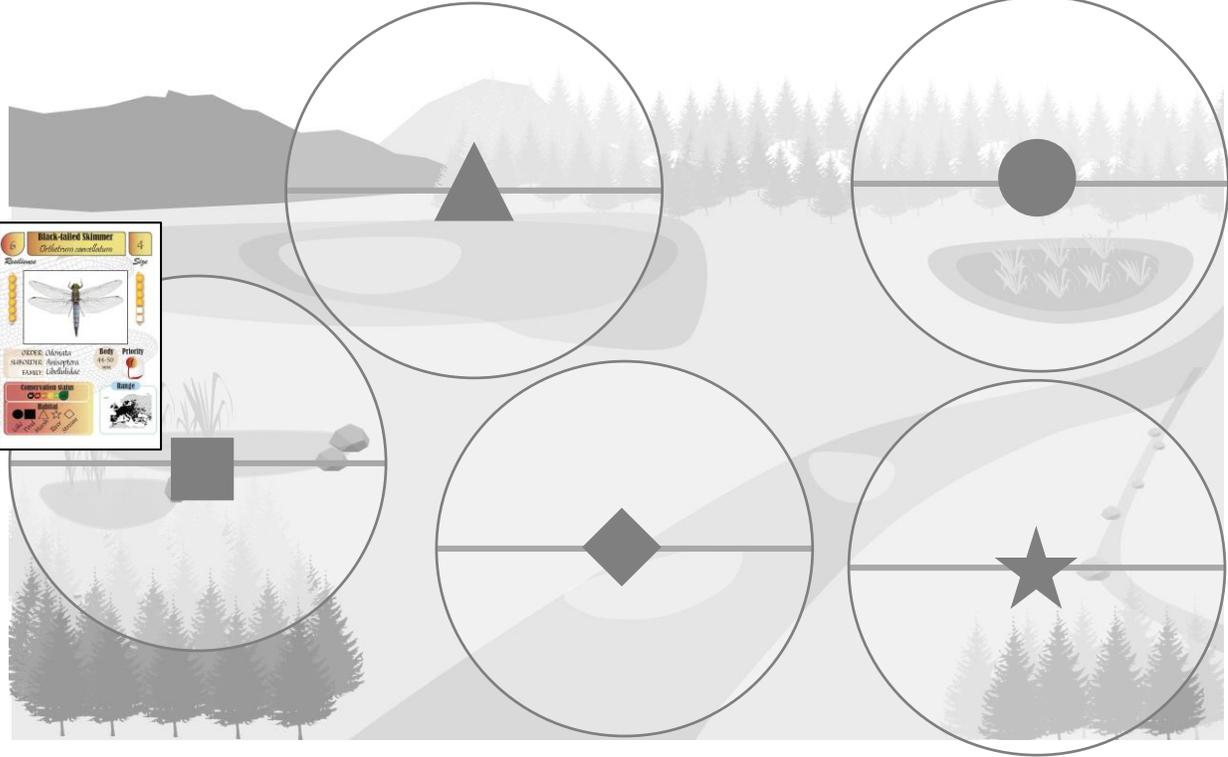
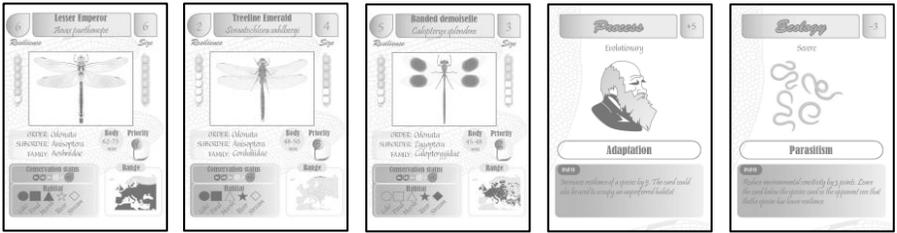


Habitat occupied: 0

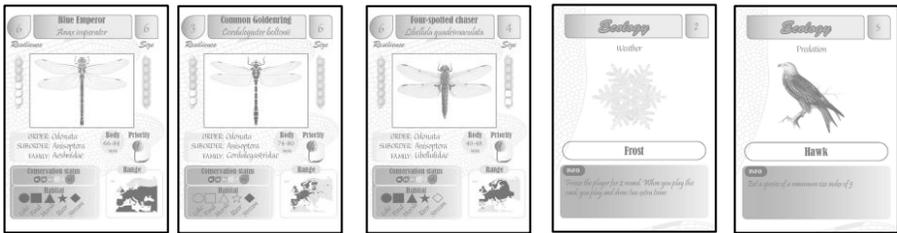
Disturbances solved: 0 0 0

Conservation priority: 0

Player 1



Player 2



Habitat occupied: 1 (represented by a square marker)

Disturbances solved: 0 (represented by three +2, +4, +6 markers)

Conservation priority: 1 (represented by a dragonfly icon)

Dragonfly

Action

Disturbance

Gameplay

1 Same as Player 1, Player 2 rolls a die first.

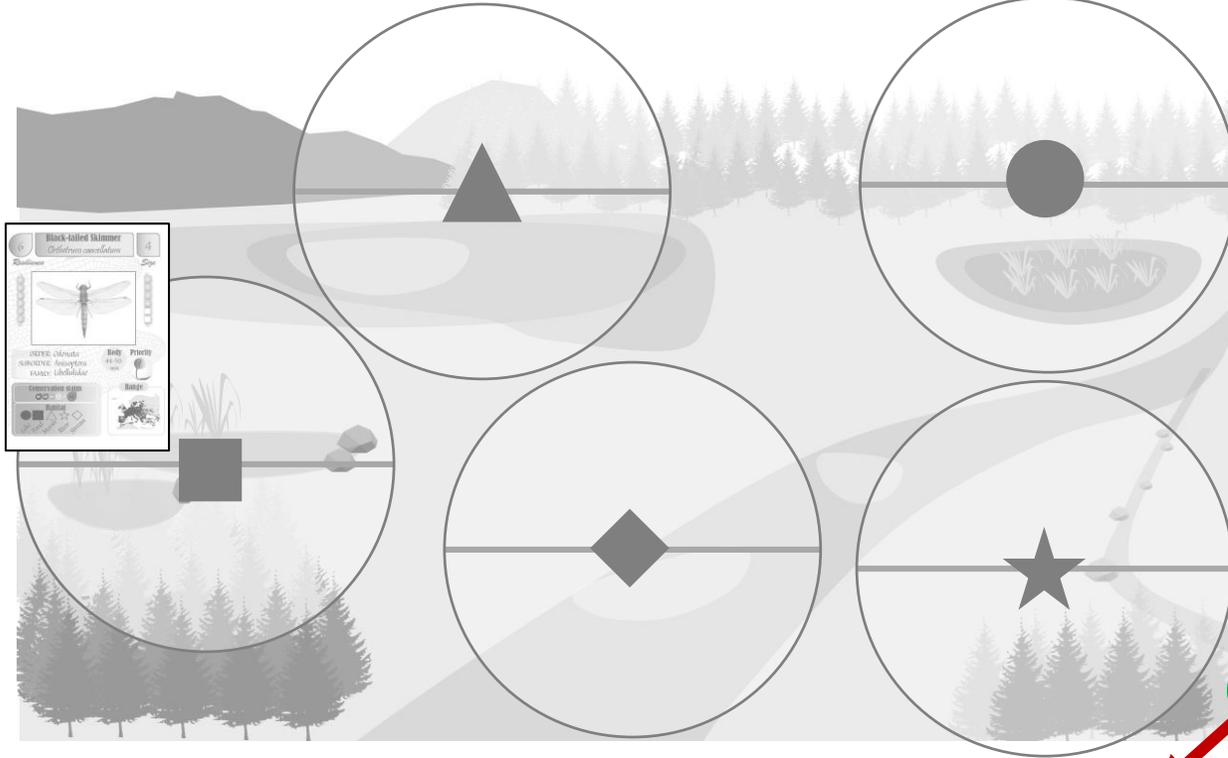
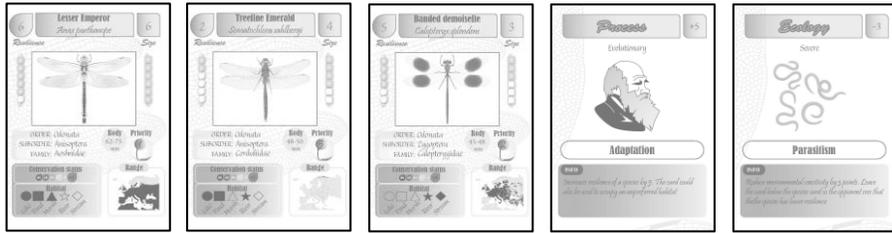
- Here, Player 2 has to draw an action card.

Habitat occupied: 0 (represented by a square marker)

Disturbances solved: 0 (represented by three +2, +4, +6 markers)

Conservation priority: 0 (represented by a dragonfly icon)

Player 1



Habitat occupied: 1 (represented by a square)

Disturbances solved: 0, 0, 0 (represented by +2, +4, +6 buttons)

Conservation priority: 1 (represented by a dragonfly icon)

Dragonfly

Action

Disturbance

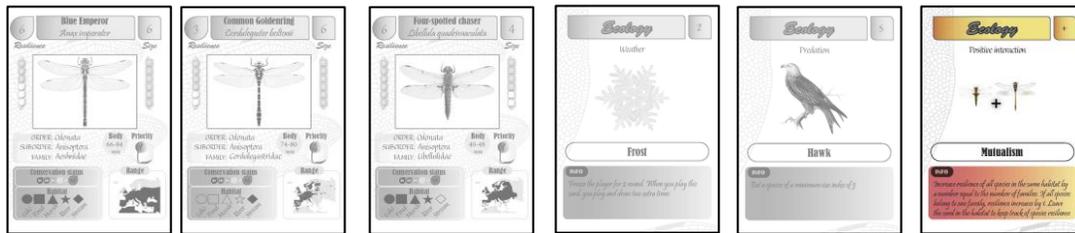
1

Gameplay

1 Player 2 draws one action card

- Player 2 received a mutualism card

Player 2

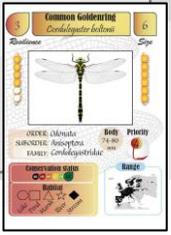
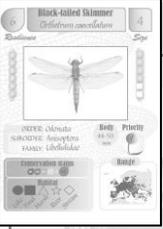
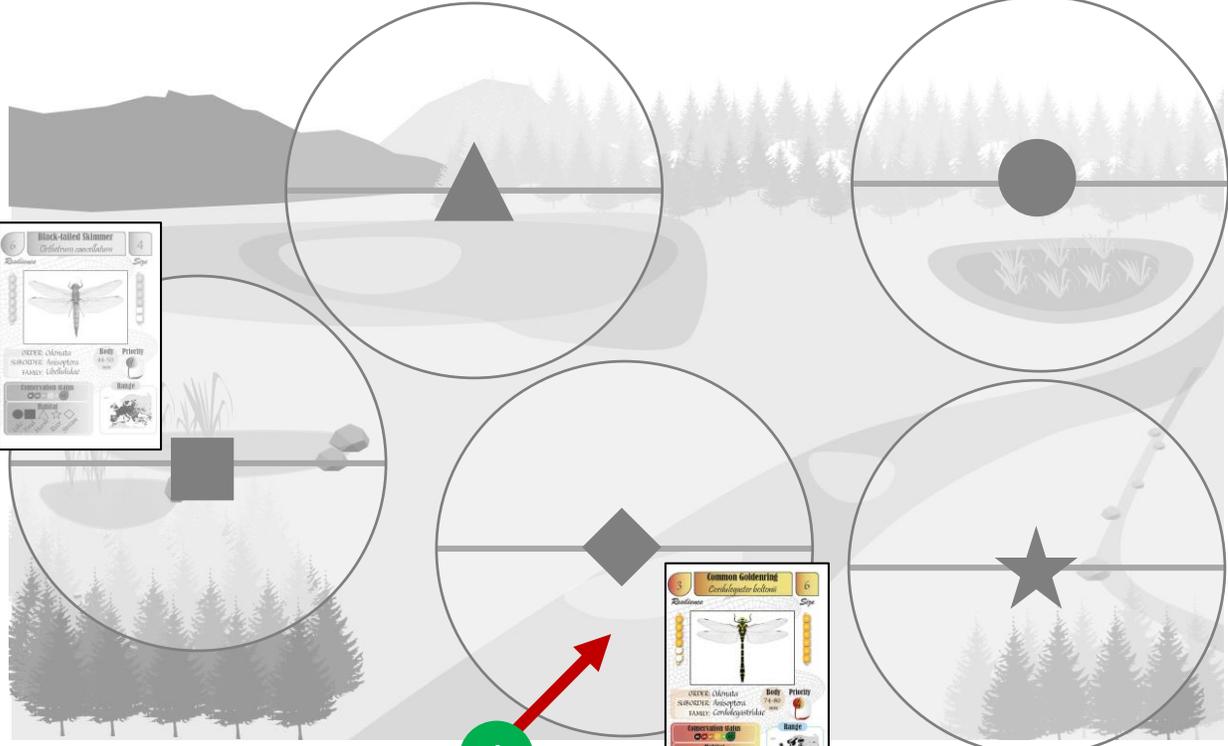
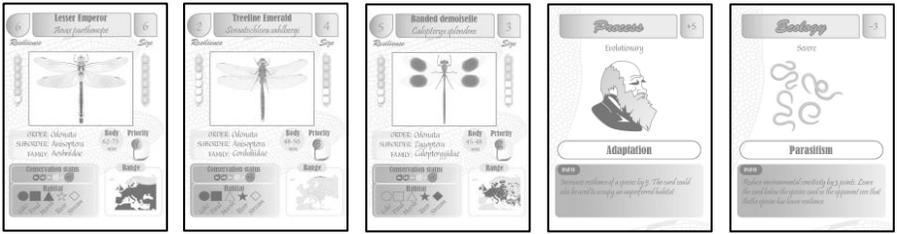


Habitat occupied: 0 (represented by a square)

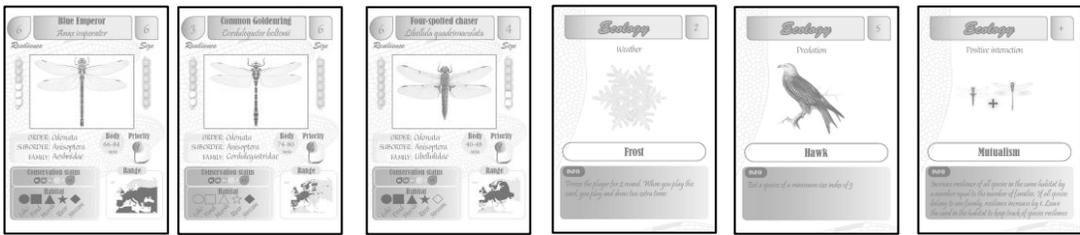
Disturbances solved: 0, 0, 0 (represented by +2, +4, +6 buttons)

Conservation priority: 0 (represented by a dragonfly icon)

Player 1



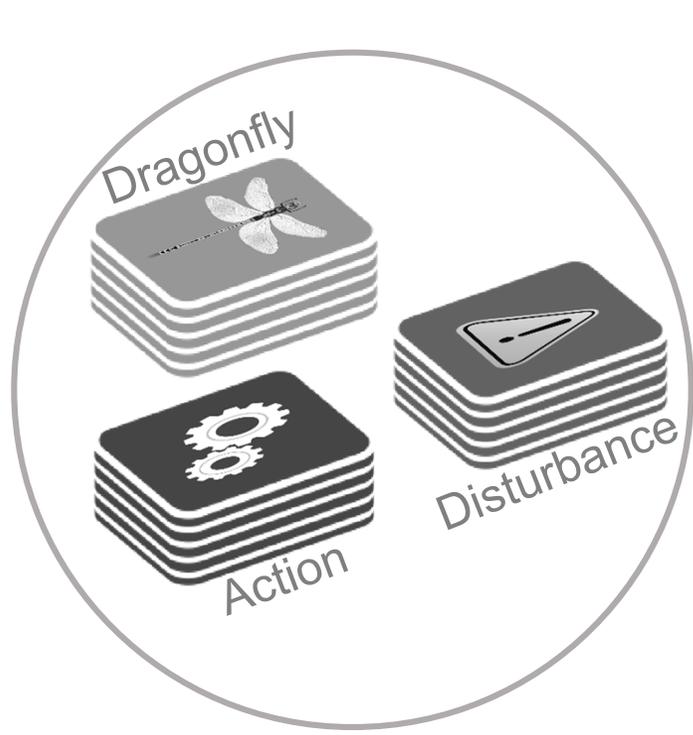
Player 2



Habitat occupied: [Square] [Triangle] [Circle] [Diamond] [Star] → 1

Disturbances solved: +2 [0] +4 [0] +6 [0]

Conservation priority: [Dragonfly] → 1



Gameplay

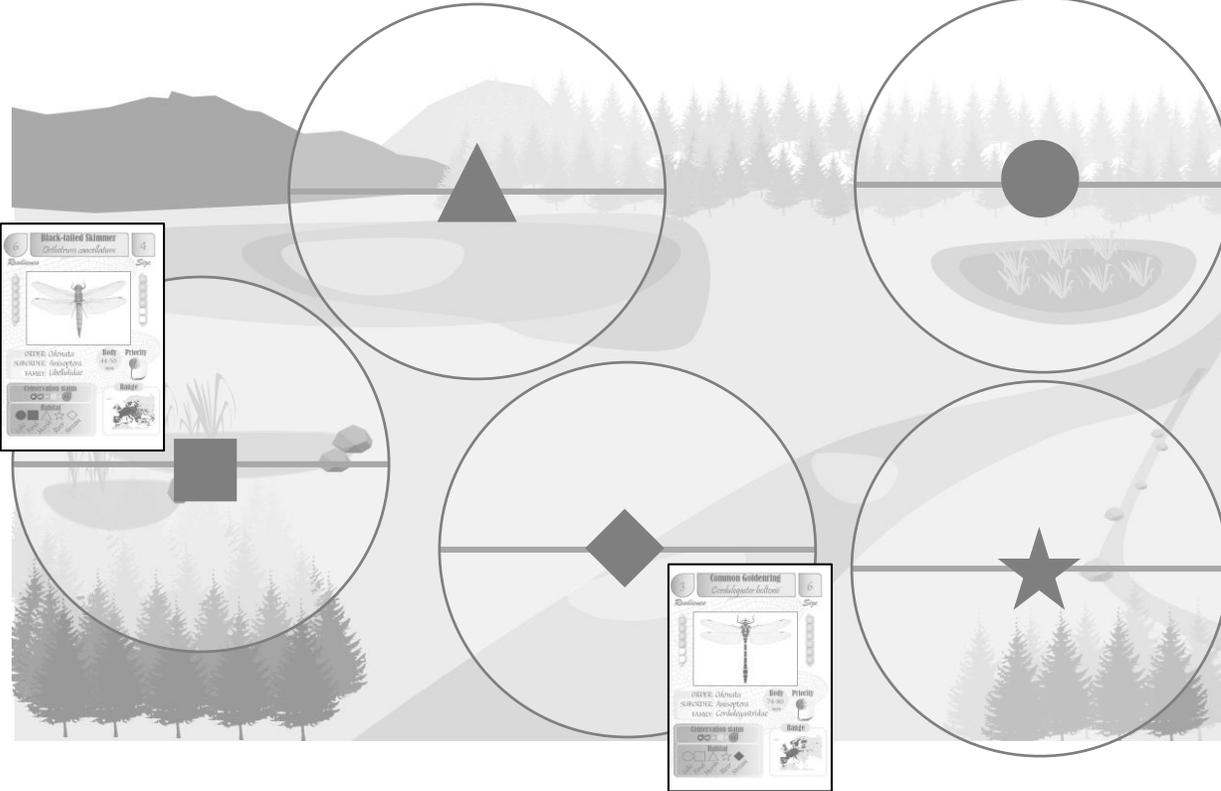
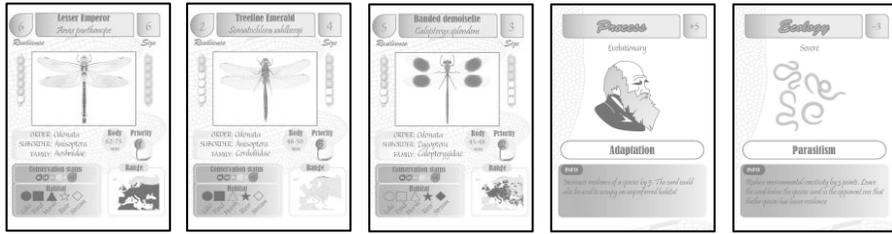
1 Player 2 plays one card
Here, Player 2 placed a dragonfly (Common Goldenring) in the diamond habitat

Habitat occupied: [Square] [Triangle] [Circle] [Diamond] [Star] → 1

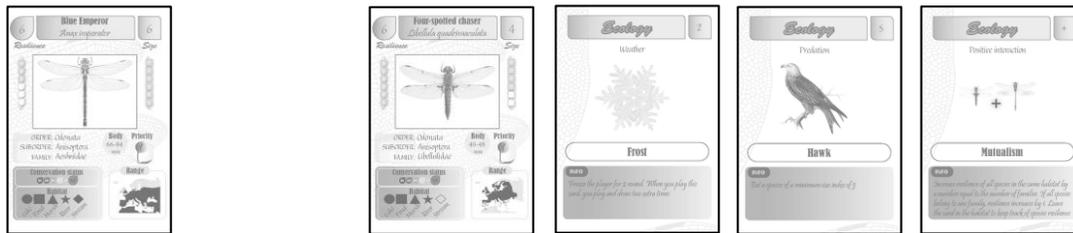
Disturbances solved: +2 [0] +4 [0] +6 [0]

Conservation priority: [Dragonfly] → 4

Player 1



Player 2



Habitat occupied: 1 (represented by a square marker)

Disturbances solved: 0, 0, 0 (represented by +2, +4, +6 buttons)

Conservation priority: 1 (represented by a dragonfly icon)

Dragonfly

Action

Disturbance

1

Gameplay

1 Player 1 tosses the die and obtains an action card

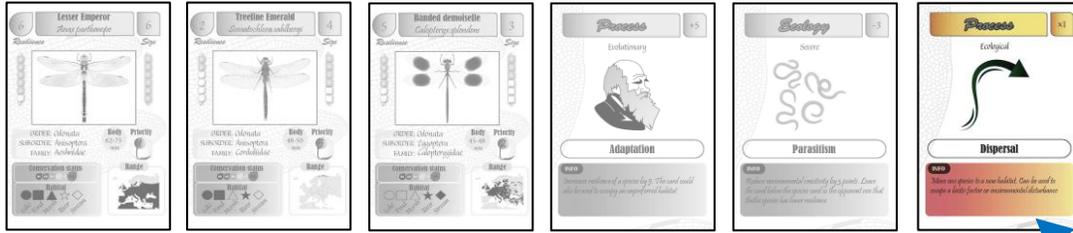
Habitat occupied: 1 (represented by a square marker)

Disturbances solved: 0, 0, 0 (represented by +2, +4, +6 buttons)

Conservation priority: 4 (represented by a dragonfly icon)



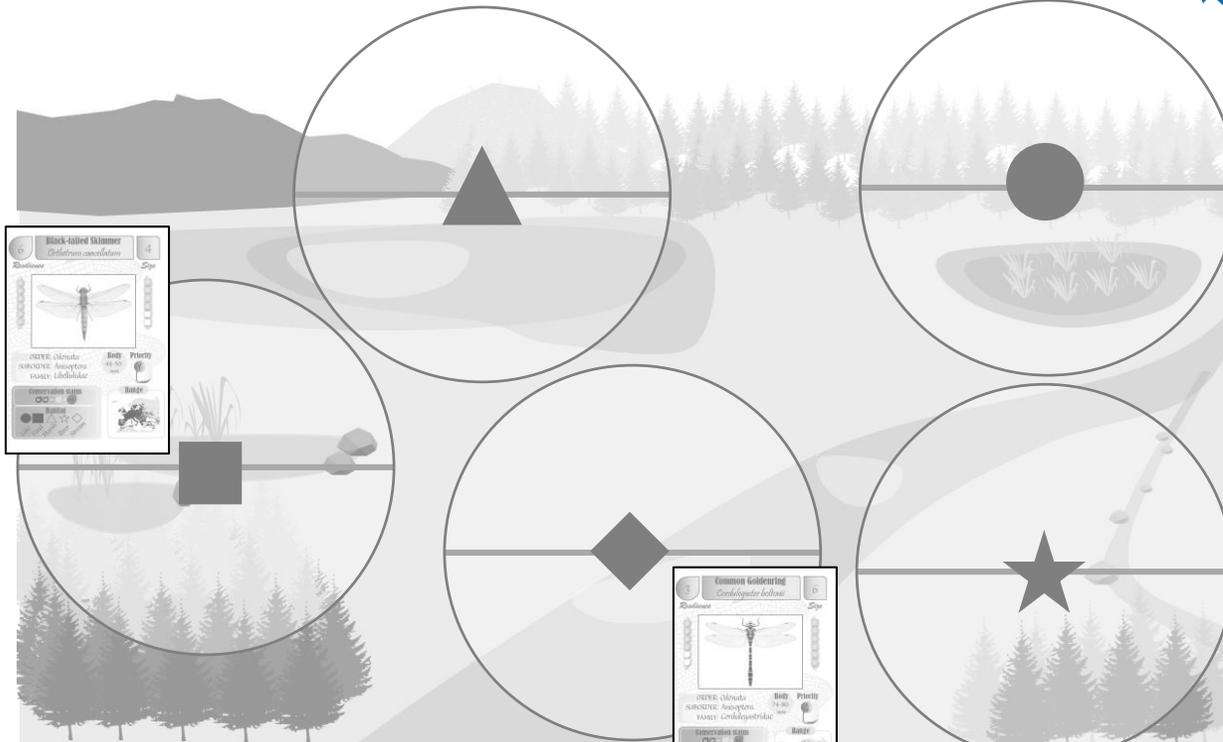
Player 1



Habitat occupied: 1 (represented by a square)

Disturbances solved: 0 (+2), 0 (+4), 0 (+6)

Conservation priority: 1 (represented by a dragonfly icon)



1

Dragonfly

Action

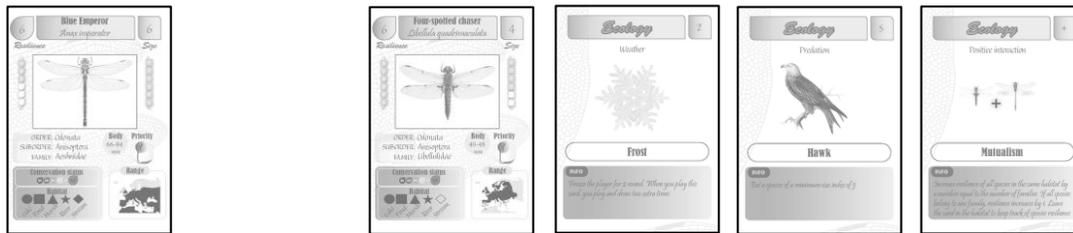
Disturbance

Gameplay

1 Player 1 draws an action card (dispersal)



Player 2

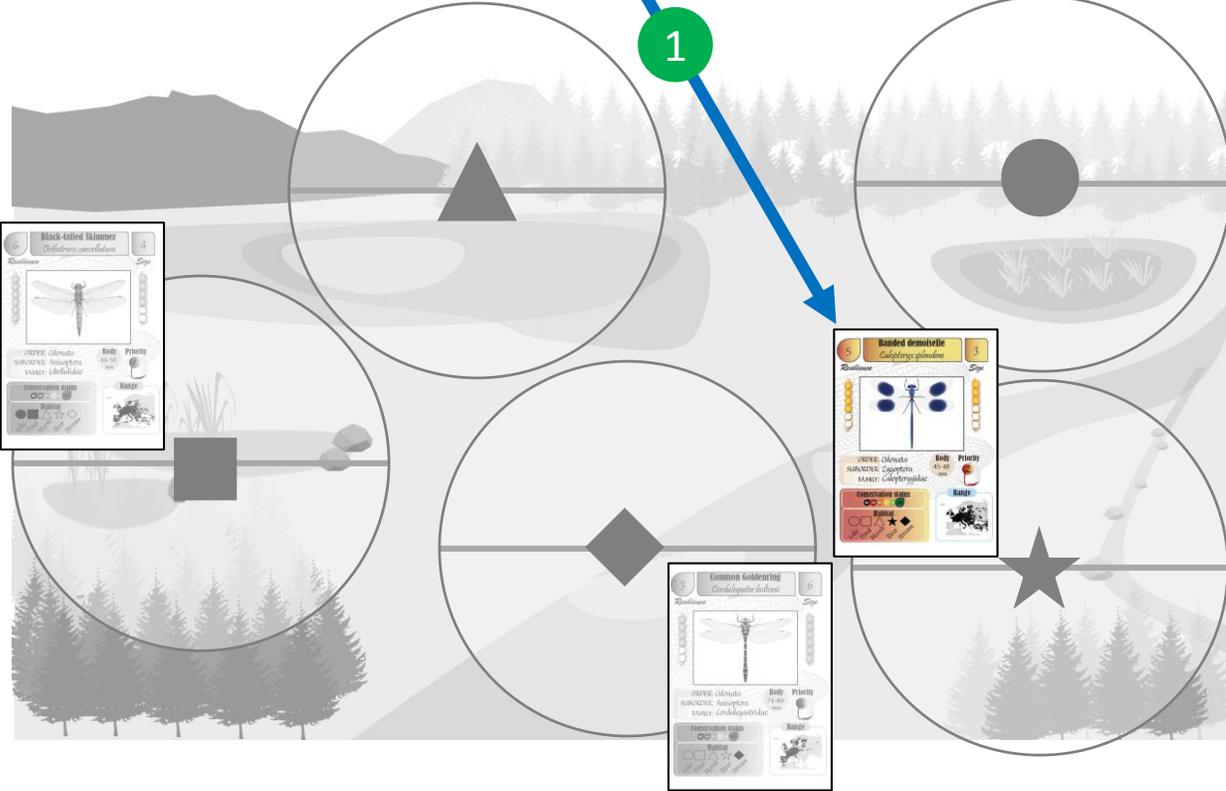
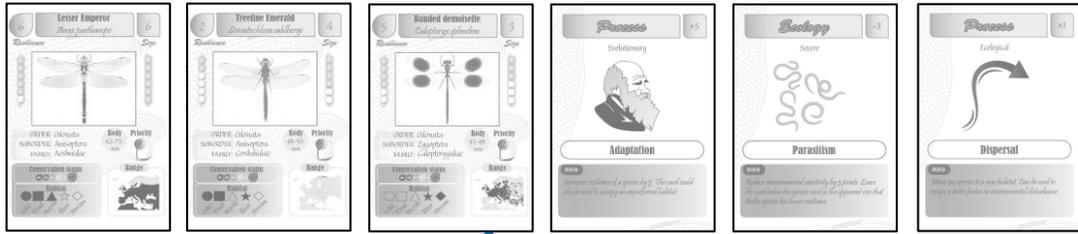


Habitat occupied: 1 (represented by a square)

Disturbances solved: 0 (+2), 0 (+4), 0 (+6)

Conservation priority: 4 (represented by a dragonfly icon)

Player 1



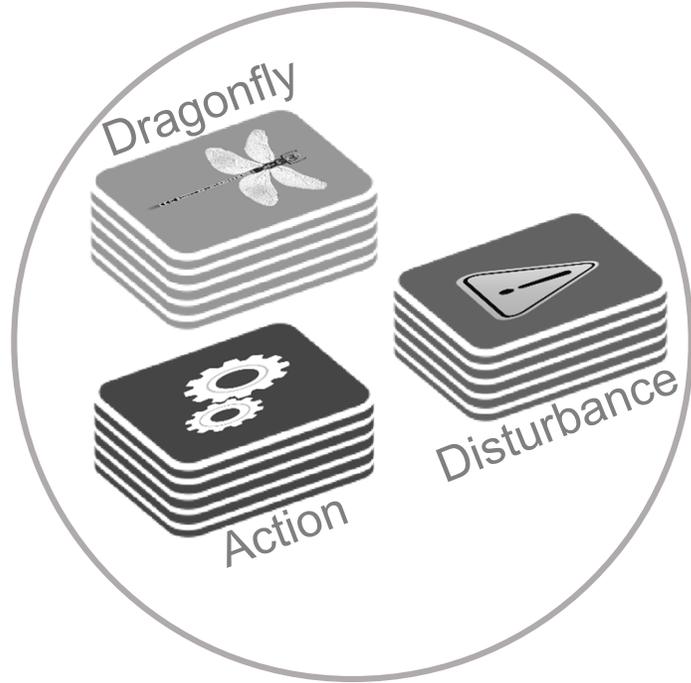
Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] **2**

Disturbances solved
 (+2) (+4) (+6)
 0 0 0

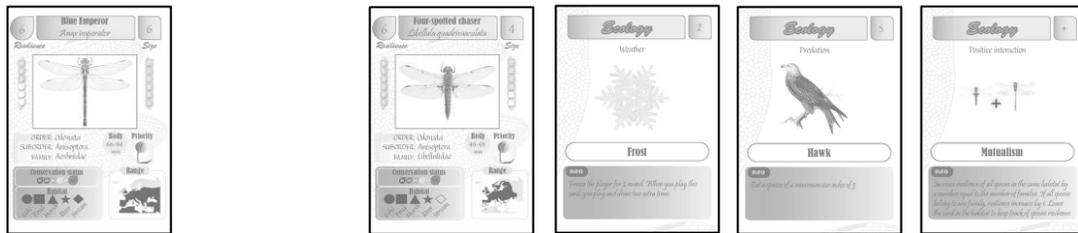
Conservation priority
 [Dragonfly] **3**

Gameplay

1 Player 1 places a dragonfly card (banded demoiselle) in the star habitat



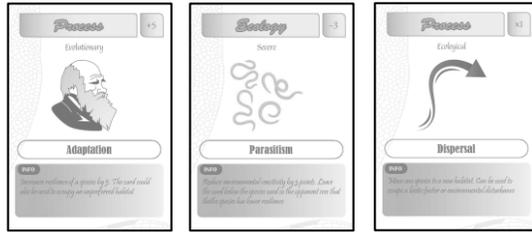
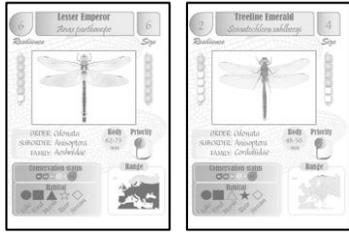
Player 2



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] **1**

Disturbances solved
 (+2) (+4) (+6)
 0 0 0

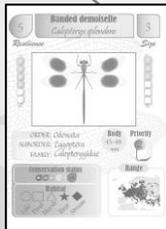
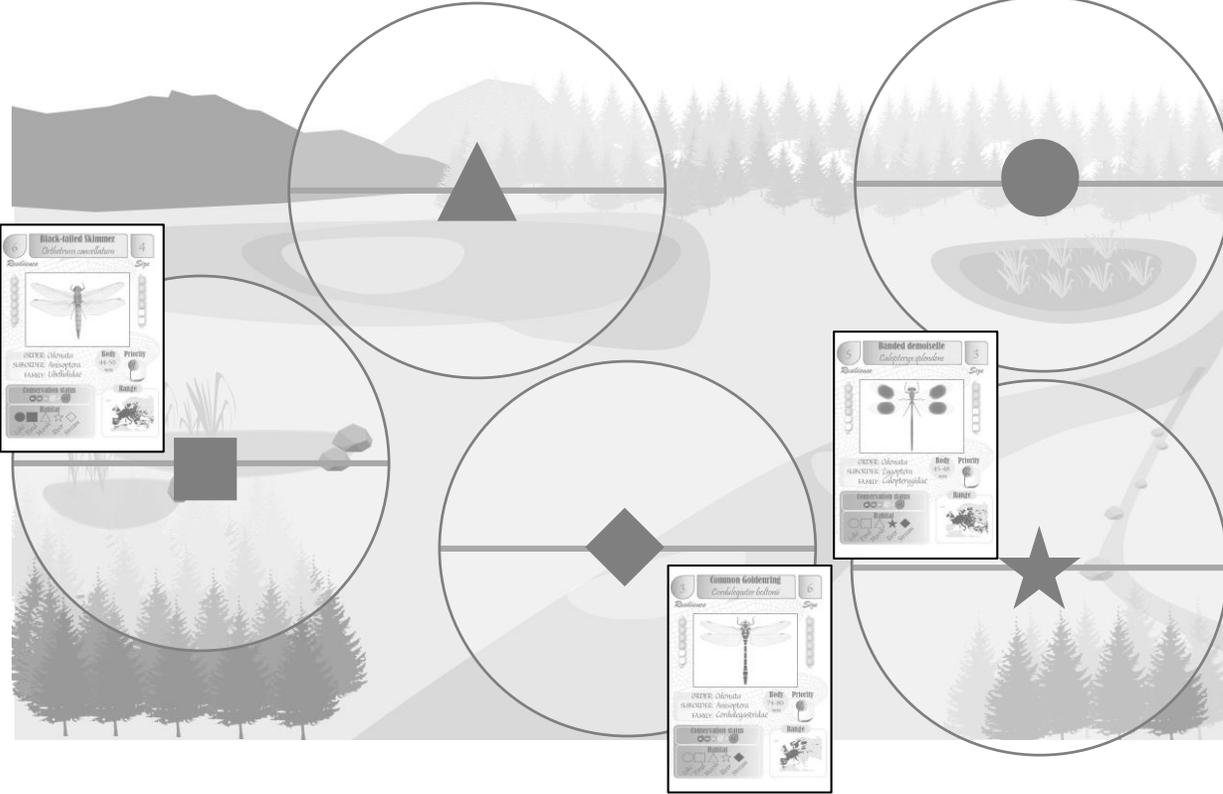
Conservation priority
 [Dragonfly] **4**



Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 3



Gameplay

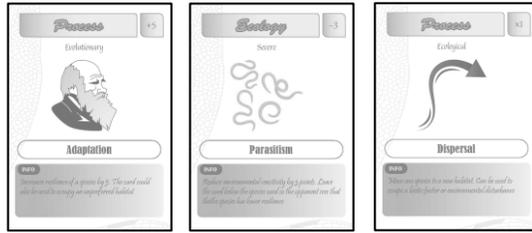
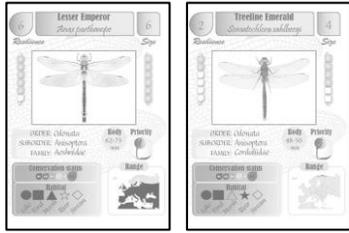
1 Player 2 rolls the dice and obtain action card

Habitat occupied: 1

Disturbances solved: 0, 0, 0

Conservation priority: 4

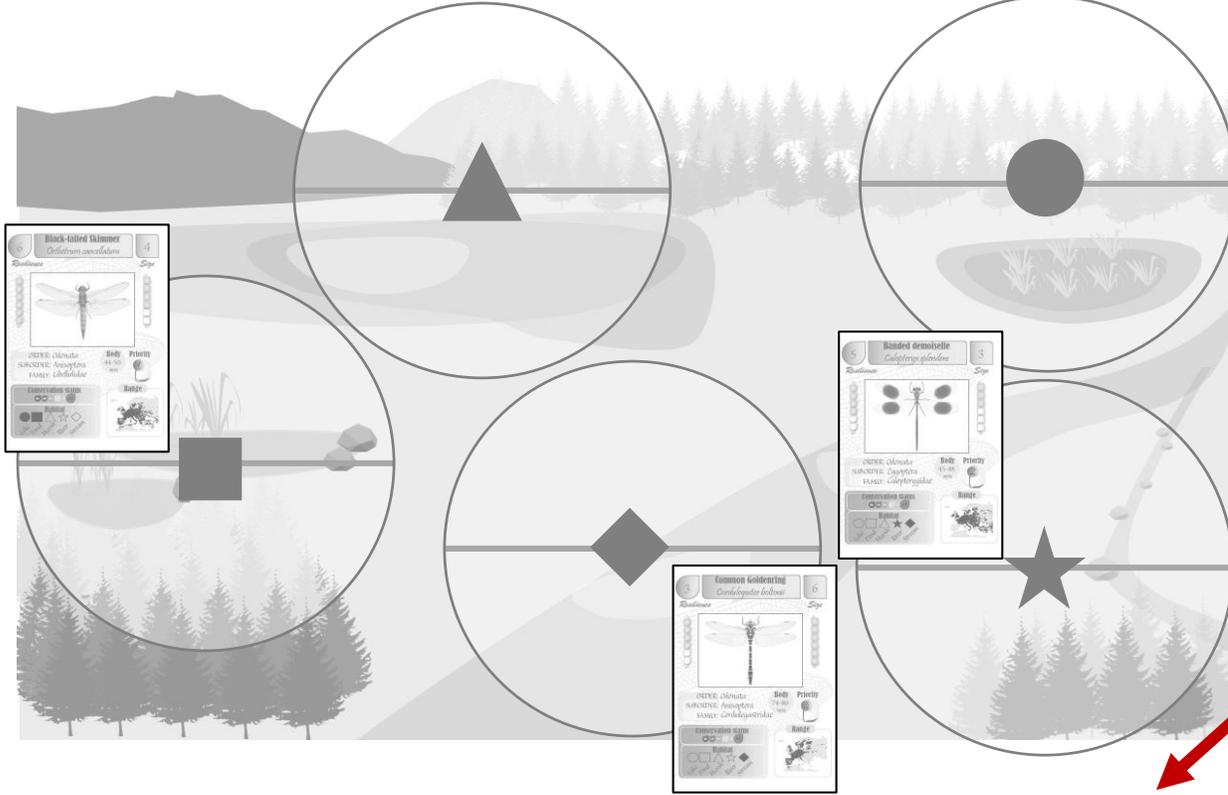
Player 1



Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 3



Dragonfly

Action

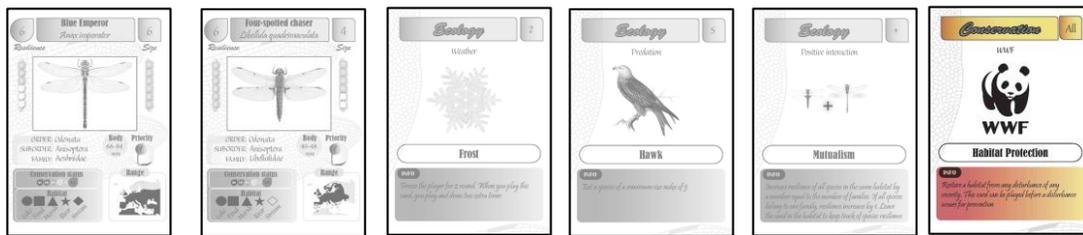
Disturbance

1

Gameplay

1 Player 2 obtains a conservation card (WWF)

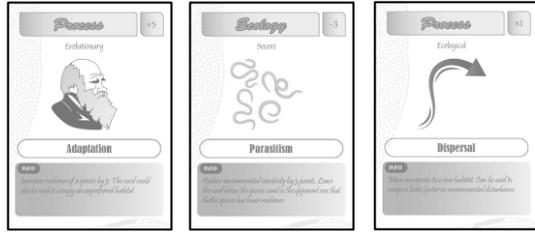
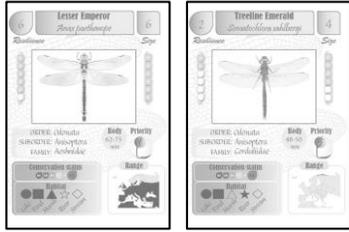
Player 2



Habitat occupied: 1

Disturbances solved: 0, 0, 0

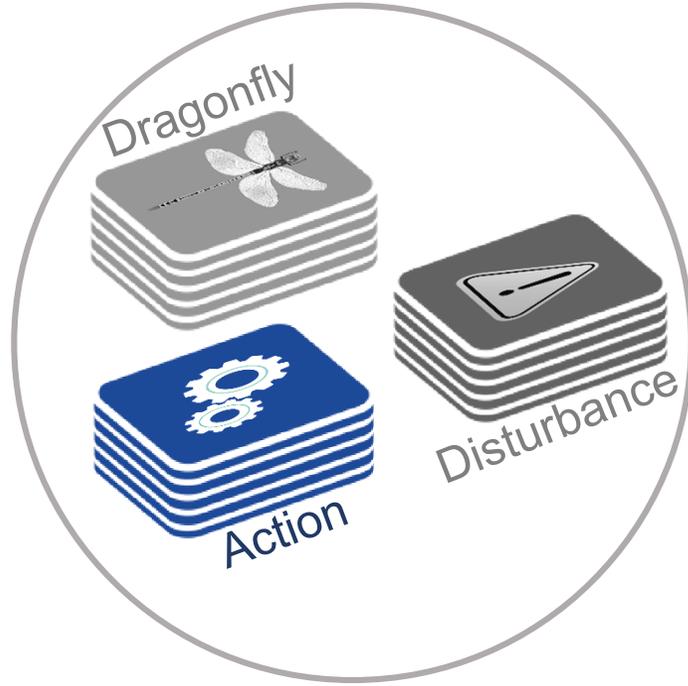
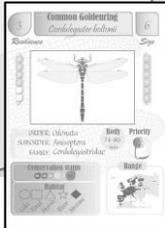
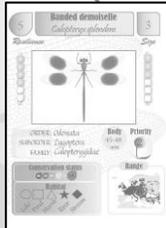
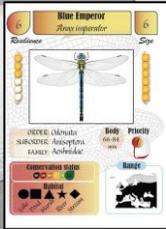
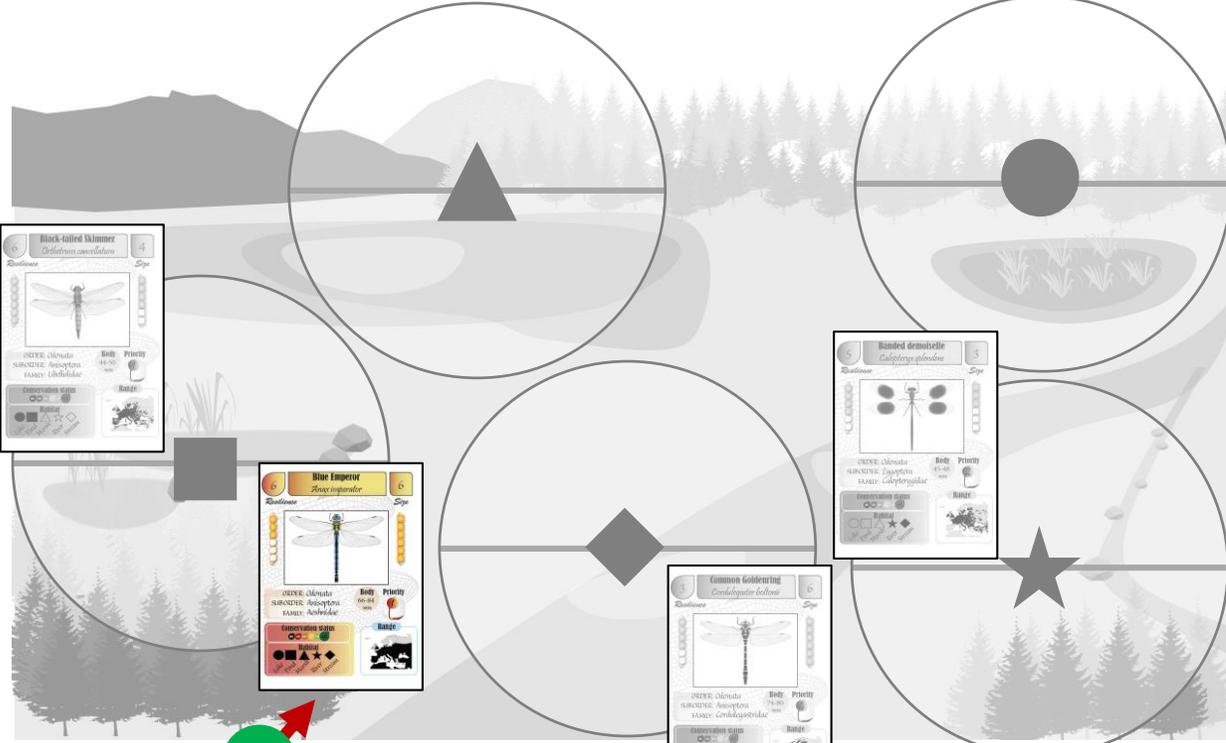
Conservation priority: 4



Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 3



Gameplay

- 1 Player 2 places a dragonfly card (Blue Emperor) in the square habitat

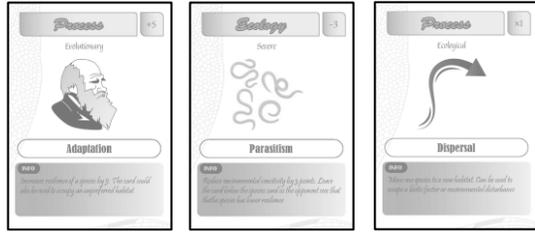
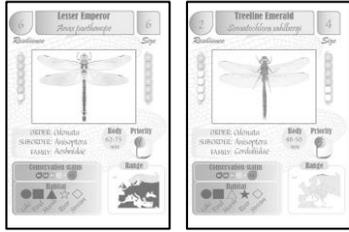


Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 5

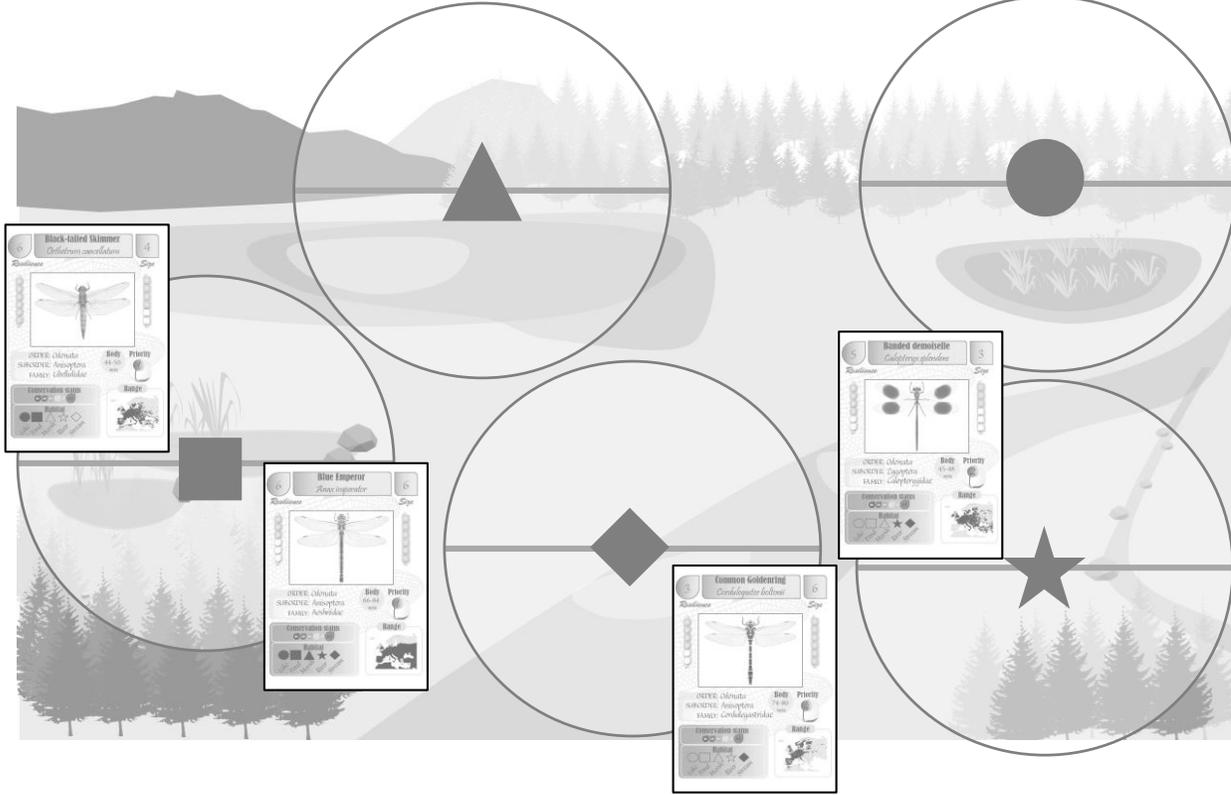
Player 1



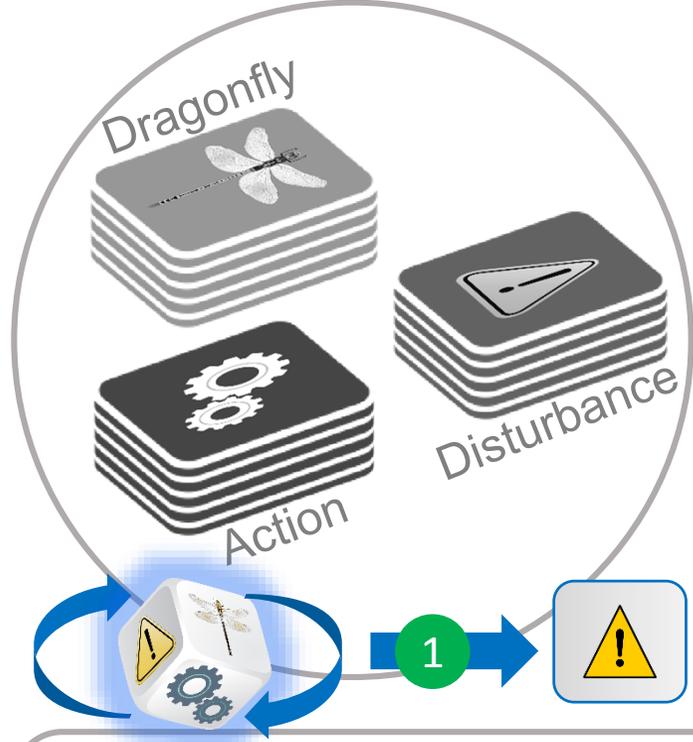
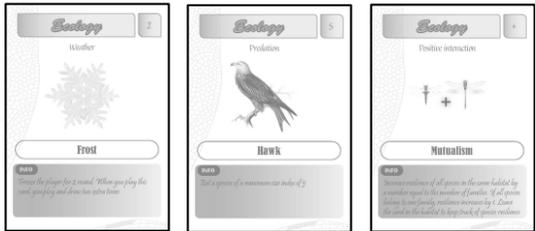
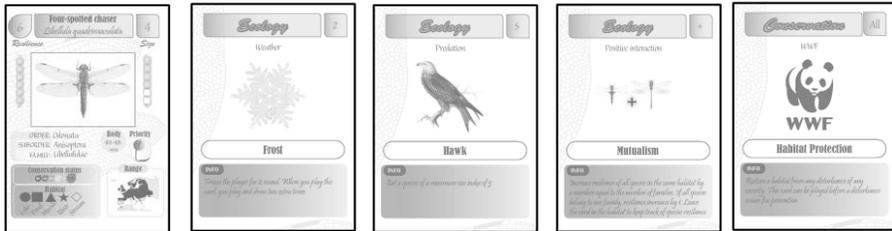
Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 3



Player 2



Gameplay

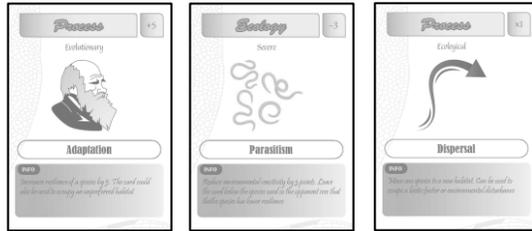
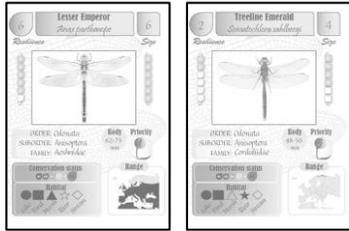
- 1 Player 1 rolls the dice and obtain the disturbance card

Habitat occupied: 2

Disturbances solved: 0, 0, 0

Conservation priority: 5

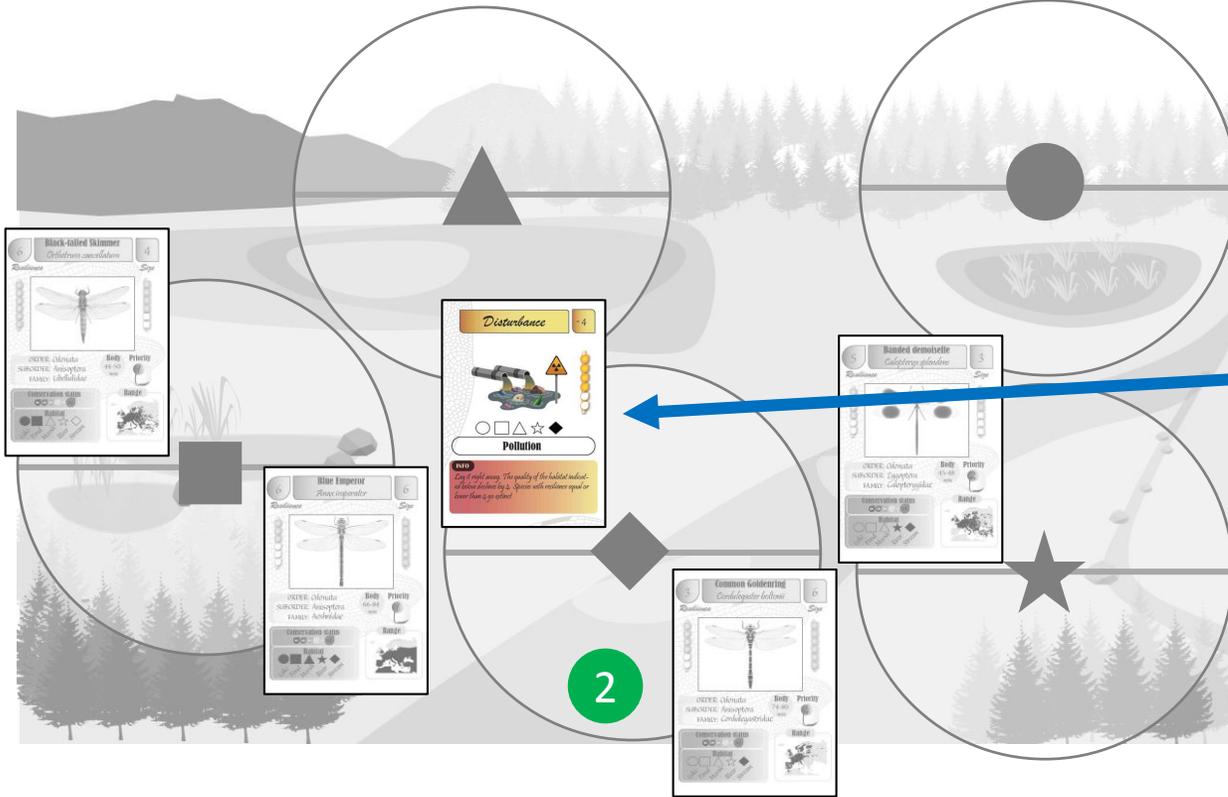
Player 1



Habitat occupied: [Square] [Triangle] [Circle] [Diamond] [Star] = 2

Disturbances solved: (+2) (+4) (+6) = 0 0 0

Conservation priority: 3



Gameplay

- The disturbance card is Pollution (quite severe) for the diamond habitat
 - Note that the disturbance card is not played by Player 1 as it could affect either players.
- Here, the dragonfly in the diamond habitat (Common Goldenring) has a resilience of 3, but the disturbance has a severity of 4 which kills the species (+3-4 = -1).
 - Thus, if severity ≥ resilience, the species dies

Player 2

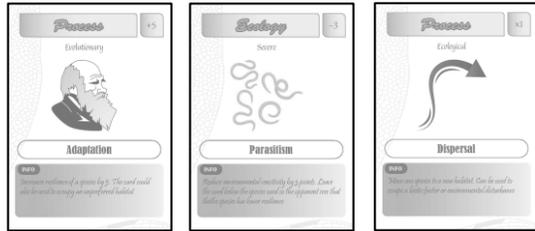
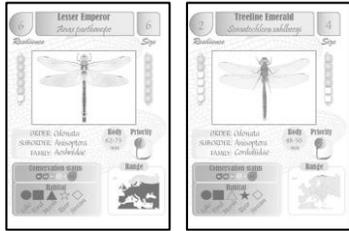


Habitat occupied: [Square] [Triangle] [Circle] [Diamond] [Star] = 2

Disturbances solved: (+2) (+4) (+6) = 0 0 0

Conservation priority: 5

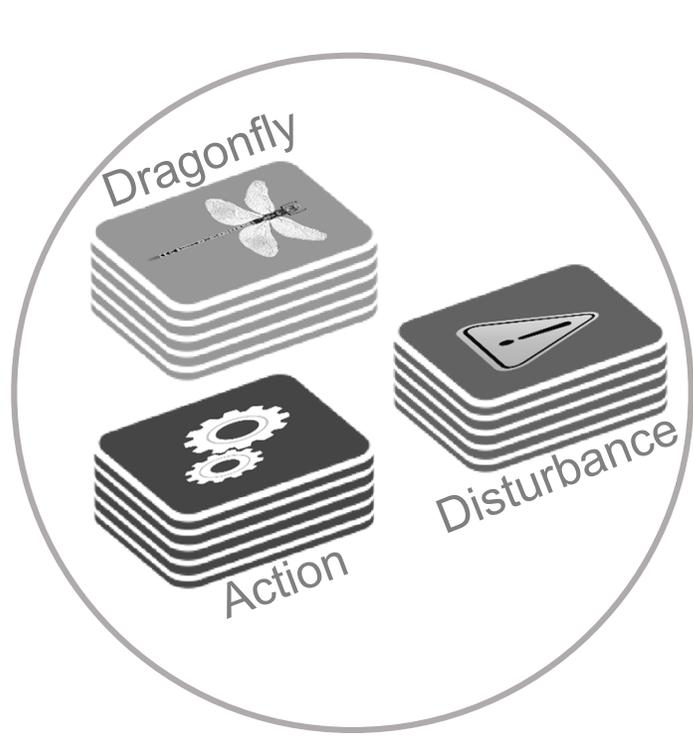
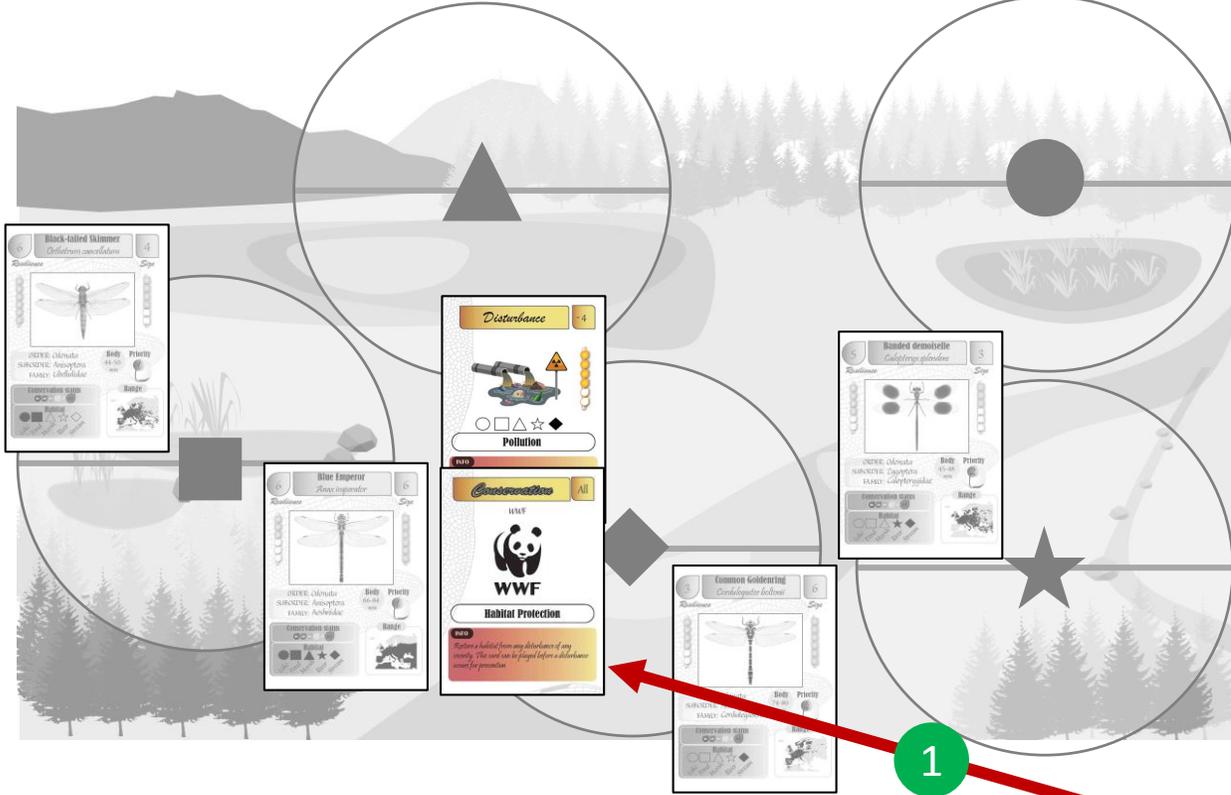
Player 1



Habitat occupied: 2 (represented by a square, triangle, circle, diamond, and star)

Disturbances solved: 0, 0, 0 (represented by +2, +4, +6 buttons)

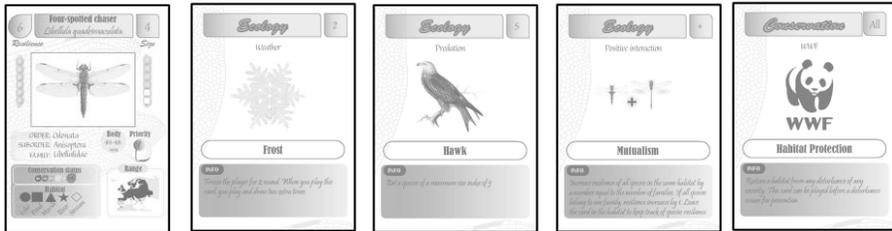
Conservation priority: 3 (represented by a dragonfly icon)



Gameplay

1 To save the dragonfly in the diamond habitat, Player 2 uses a conservation card which removes the disturbance from the habitat

Player 2

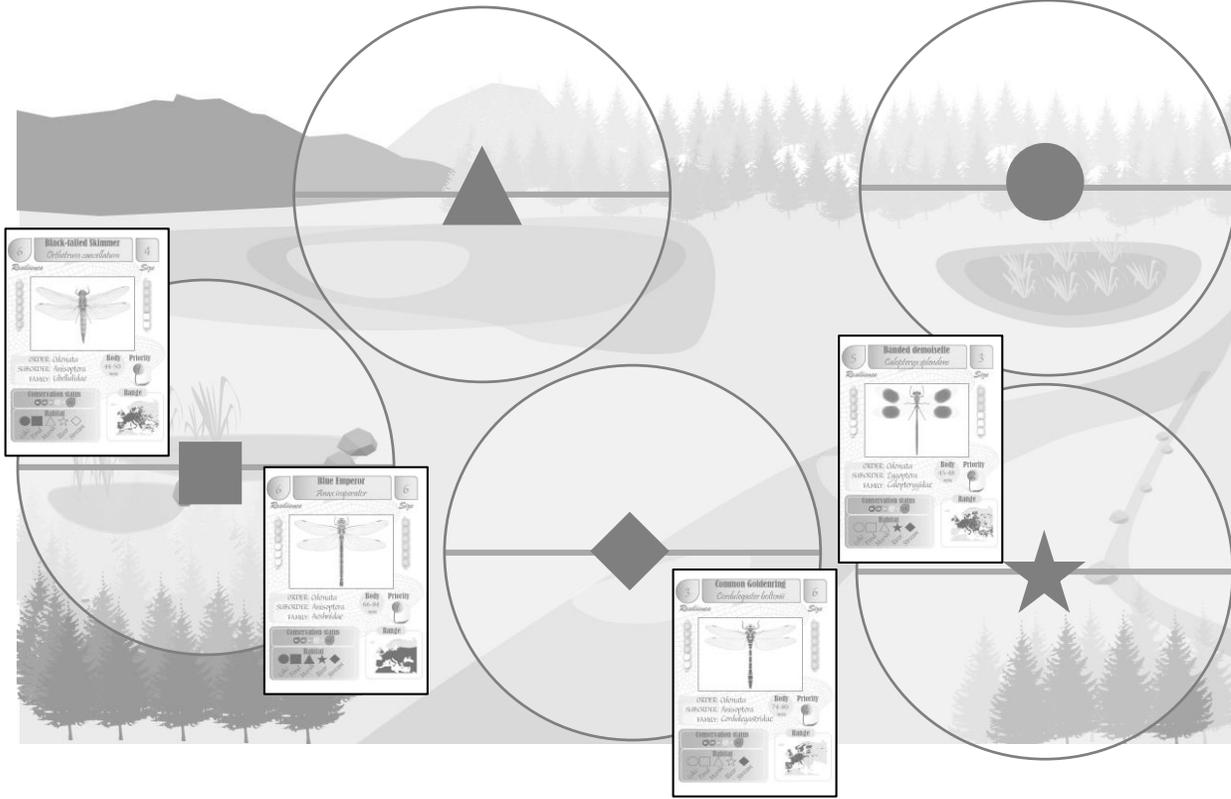
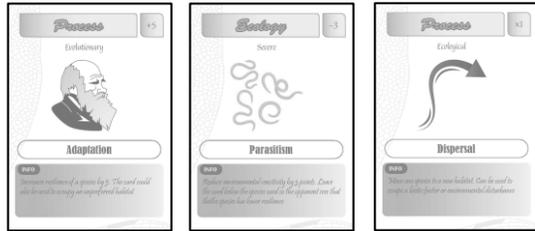
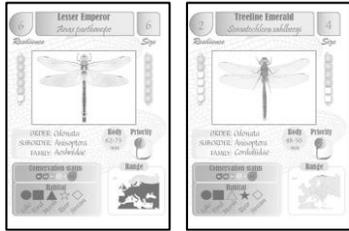


Habitat occupied: 2 (represented by a square, triangle, circle, diamond, and star)

Disturbances solved: 1 (represented by +2, +4, +6 buttons)

Conservation priority: 5 (represented by a dragonfly icon)

Player 1



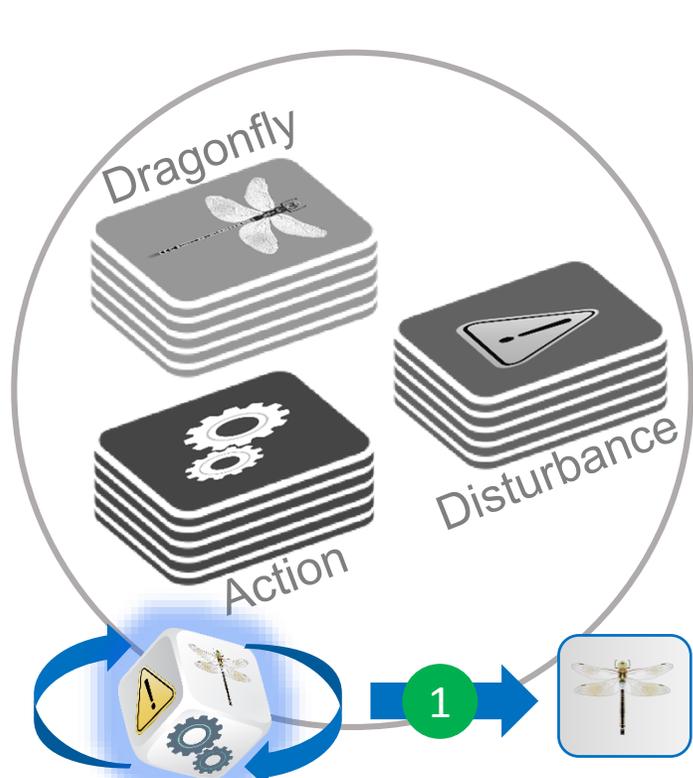
Player 2



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → **2**

Disturbances solved
 (+2) (+4) (+6) → **0 0 0**

Conservation priority
 [Dragonfly] → **3**



Gameplay

1 Player 1 rolls the dice and obtain a dragonfly logo

Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → **2**

Disturbances solved
 (+2) (+4) (+6) → **0 1 0**

Conservation priority
 [Dragonfly] → **5**



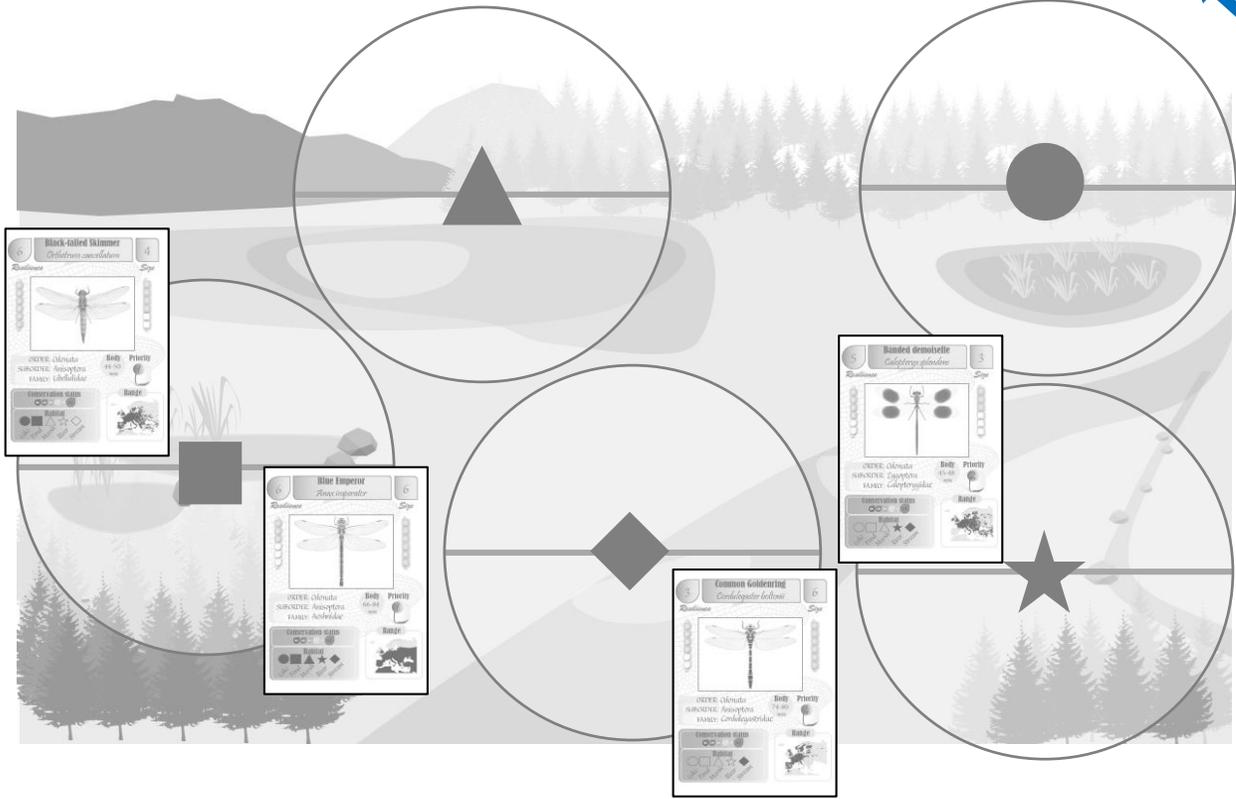
Player 1

Player 1's hand of cards:

- Lesser Emperor** (*Zygoptera*): 6 points, 100% priority. Traits: Adaptation, Dispersal.
- Treeline Emerald** (*Zygoptera*): 10 points, 100% priority. Traits: Dispersal, Adaptation.
- Parasit** (*Scorpaenidae*): 15 points, 100% priority. Trait: Parasitism.
- Scorpaenidae** (*Scorpaenidae*): 10 points, 100% priority. Trait: Parasitism.
- Parasit** (*Scorpaenidae*): 10 points, 100% priority. Trait: Dispersal.
- Blue Hawker** (*Zygoptera*): 6 points, 100% priority. Traits: Dispersal, Adaptation.

Player 1's status:

- Habitat occupied:** 2 (represented by a square and a triangle)
- Disturbances solved:** 0, 0, 0 (represented by three circles with +2, +4, +6)
- Conservation priority:** 3 (represented by a dragonfly icon)



1

Dragonfly

Action

Disturbance

Gameplay

1 Player 1 draws a dragonfly card and obtains the Blue Hawker



Player 2

Player 2's hand of cards:

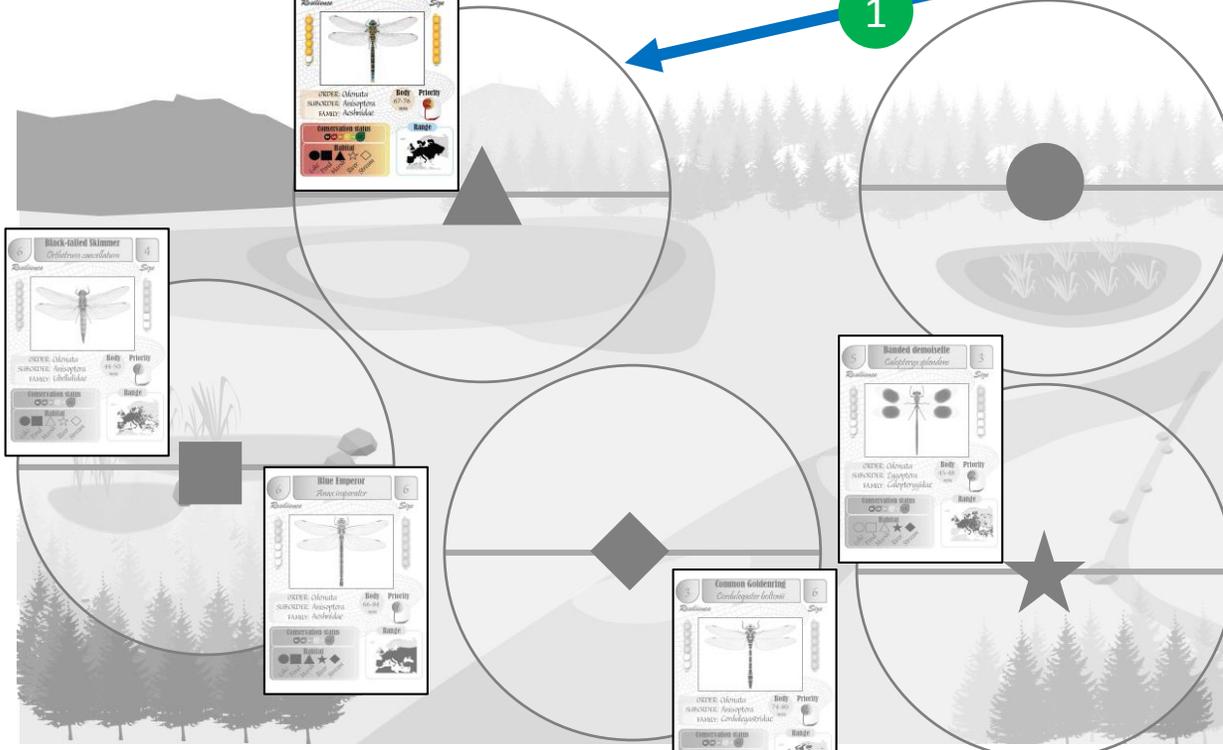
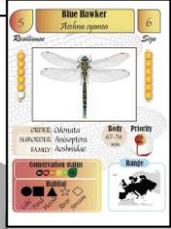
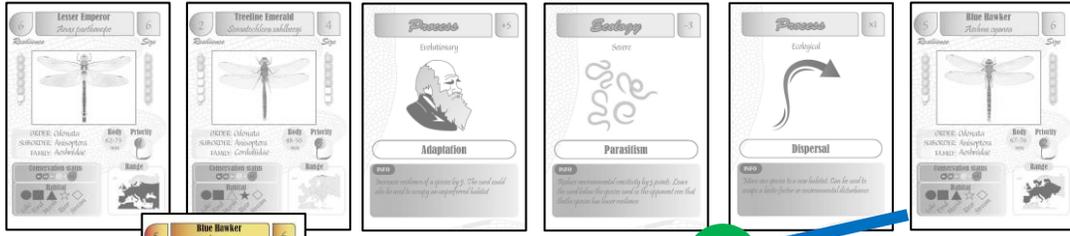
- Freshwater Blazer** (*Zygoptera*): 10 points, 100% priority. Trait: Dispersal.
- Frost** (*Weather*): 2 points, 100% priority. Trait: Weather.
- Hawk** (*Accipiter*): 5 points, 100% priority. Trait: Predation.
- Mutualism** (*Ecology*): 10 points, 100% priority. Trait: Positive interaction.

Player 2's status:

- Habitat occupied:** 2 (represented by a square and a triangle)
- Disturbances solved:** 0, 1, 0 (represented by three circles with +2, +4, +6)
- Conservation priority:** 5 (represented by a dragonfly icon)



Player 1



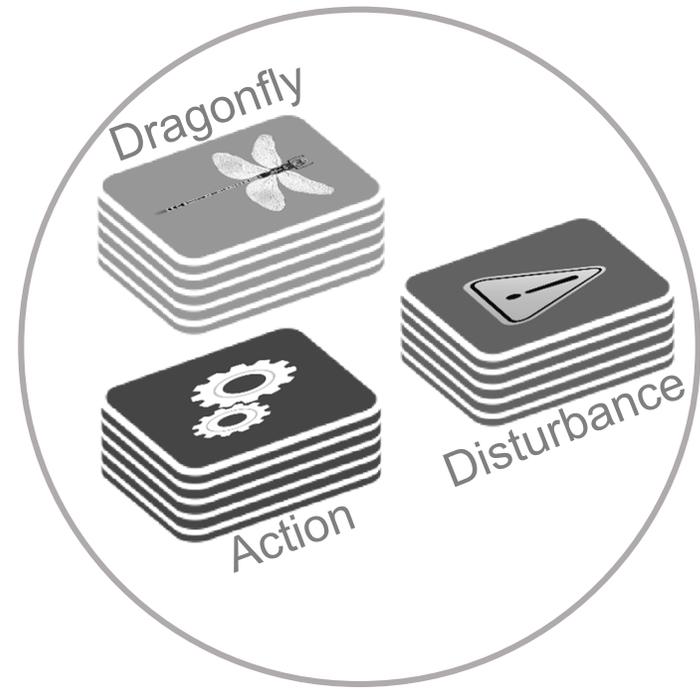
Habitat occupied: 3

Disturbances solved: 0 0 0

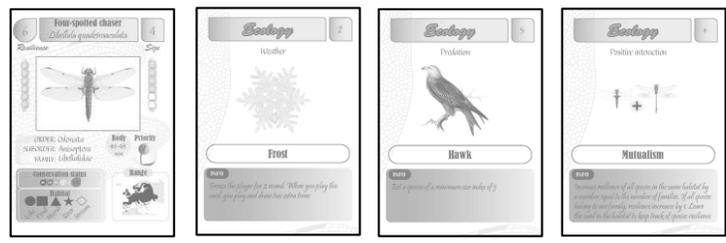
Conservation priority: 5

Gameplay

1 Player 1 places the Blue Hawker in the triangle habitat



Player 2



Habitat occupied: 2

Disturbances solved: 0 1 0

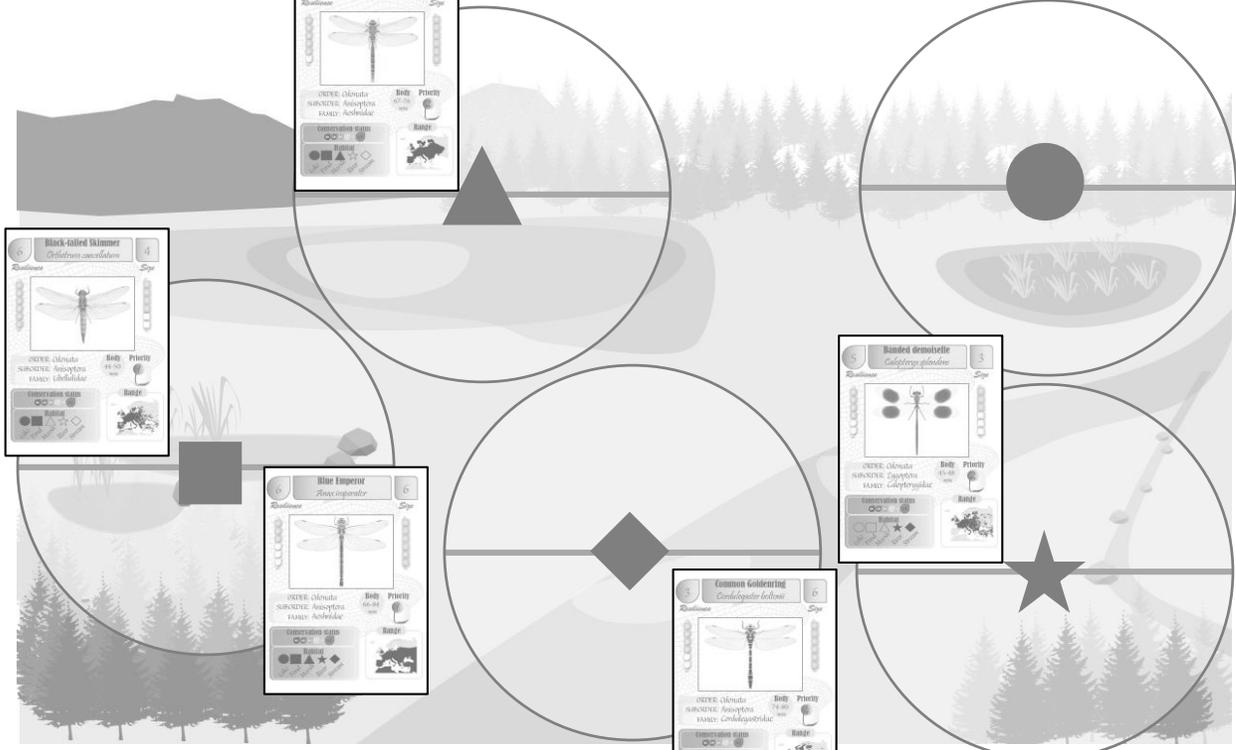
Conservation priority: 5

Player 1

Letter Emperor *Stylogastera* 6
 Evolutionary
 Adaptation
 Score: 15
 Effect: Increase resilience of a species by 2. The card could also be used to occupy an unoccupied habitat.

Treeline Emerald *Stenochorina* 14
 Ecological
 Parasitism
 Score: -1
 Effect: Decrease environmental suitability by 2 points. Does not need habitat. The species and its dependent ones that share species have lower resilience.

Process 14
 Ecological
 Dispersal
 Score: +1
 Effect: Move one species to one habitat. Can be used to occupy a habit. Reduce environmental disturbance.



Player 2

Four-spined Chaser *Libellula quadripunctata* 4
 Ecological
 Frost
 Score: 2
 Effect: Freeze the player for 2 rounds. When you play the card, your frog and dove are gone.

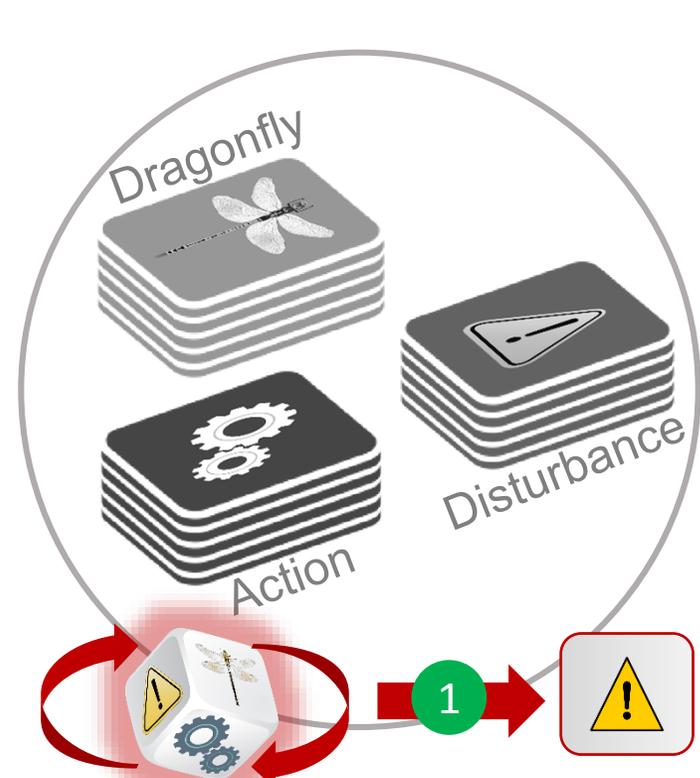
Ecology 5
 Evolutionary
 Hawk
 Score: 5
 Effect: Eat a species if a maximum can be eaten.

Ecology 1
 Evolutionary
 Mutualism
 Score: +1
 Effect: Increase resilience of all species in the same habitat by a number equal to the number of species. If a species shares a same family, resilience increases by 1. Does not need to be used to keep track of species resilience.

Habitat occupied
 3

Disturbances solved
 +2 +4 +6
 0 0 0

Conservation priority
 5



Gameplay

1 Player 2 rolls the dice and obtain the disturbance logo

Habitat occupied
 2

Disturbances solved
 +2 +4 +6
 0 1 0

Conservation priority
 5



Player 1

Player 1's hand:

- Letzer Emperor (Resilience 6)
- Treeline Emerald (Resilience 11)
- Parasitism (Evolutionary)
- Parasitism (Scary)
- Parasitism (Ecological)

Gameboard showing Player 1's territories and actions:

- Black-tailed Skimmer (Resilience 5)
- Blue Emperor (Resilience 6)
- Disturbance -4 (Habitat Fragmentation)
- Common Goldenring (Resilience 6)
- Bandit dragonfly (Resilience 5)

A red arrow labeled '1' points from the Common Goldenring territory to the Disturbance card. A red 'X' labeled '2' is over the Common Goldenring card.



Player 2

Player 2's hand:

- Frost (Weather)
- Hawk (Predation)
- Mutualism (Positive interaction)

Player 1's status:

- Habitat occupied: 3
- Disturbances solved: 0, 0, 0
- Conservation priority: 5

Disturbance Action card:

- Disturbance -4
- Habitat Fragmentation
- INFO: Lay it right away. The quality of the habitat indicated below declines by 4. Species with resilience equal or lower than 4 go extinct.

Gameplay

- 1 Player 2 obtains Habitat fragmentation card (quite strong) for the diamond card
- 2 This disturbance level (Severity=4) is beyond the Resilience of the Common Goldenring (Resilience=3), thus the dragonfly will die

Player 2's status:

- Habitat occupied: 2
- Disturbances solved: 0, 1, 0
- Conservation priority: 1

Player 1

Player 1's Cards:
 - **Letter Emperor** (Blue dragonfly)
 - **Treeline Emerald** (Green dragonfly)
 - **Process: Evolutionary** (Adaptation)
 - **Ecology: Parasitism**
 - **Process: Ecological** (Dispersal)
 - **Blue Hawker** (Blue dragonfly)
 - **Black-tailed Skimmer** (Black dragonfly)
 - **Blue Emperor** (Blue dragonfly)
 - **Disturbance: Habitat Fragmentation**
 - **Ecology: Frost** (Weather)

1

Player 2

Player 2's Cards:
 - **Frost** (Weather)
 - **Ecology: Frost** (Weather)
 - **Ecology: Hawk** (Predation)
 - **Ecology: Mutualism** (Positive interaction)

Habitat occupied: 3
Disturbances solved: 0, 0, 0
Conservation priority: 5

Action
Disturbance

Gameplay

- 1 Player 2 plays the Frost card which freeze Player 1 from playing for two rounds

Habitat occupied: 1
Disturbances solved: 0, 1, 0
Conservation priority: 1

Player 1

Player 1's Cards:
 - **Letzer Emperor** (6)
 - **Treeline Emerald** (14)
 - **Parasitism** (15)
 - **Parasitism** (1)
 - **Parasitism** (11)
 - **Blue Hawker** (6)
 - **Black-tailed Skimmer** (1)
 - **Blue Emperor** (6)
 - **Disturbance: Habitat Fragmentation** (4)
 - **Ecology: Frost** (2)
 - **Banded damselfly** (3)

Player 2

Player 2's Cards:
 - **Frost** (2)
 - **Ecology: Hawk** (5)
 - **Ecology: Mutualism** (1)

Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → **3**

Disturbances solved
 (+2) (+4) (+6) → **0 0 0**

Conservation priority
 [Dragonfly Logo] → **5**

Dragonfly
Action
Disturbance

1 → [Dragonfly Logo]

Gameplay

1 Player 2 rolls the dice and obtain the dragonfly logo

Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → **1**

Disturbances solved
 (+2) (+4) (+6) → **0 1 0**

Conservation priority
 [Dragonfly Logo] → **1**

Player 1

Player 1's hand:

- Letter Emperor** (Dragonfly): 6 points, 65% priority, 10% range.
- Treeline Emerald** (Dragonfly): 12 points, 100% priority, 10% range.
- Parasite** (Evolutionary): 15 points, 100% priority, 10% range.
- Scorpius** (Scorpius): 1 point, 100% priority, 10% range.
- Parasite** (Ecological): 11 points, 100% priority, 10% range.

Gameplay area showing a landscape with a pond and forest. A red arrow labeled '1' points from the 'Disturbance' card to the 'Dragonfly' deck.

Disturbance card: **Habitat Fragmentation** (4 points). Effect: Can't collect money. The quality of the habitat reduces. Habitat is broken by a species with resistance equal or lower than its value.

Dragonfly deck: **Dragonfly** (10 cards).

Player 1's status:

- Habitat occupied:** 3 (represented by square, triangle, circle, diamond, star icons)
- Disturbances solved:** 0, 0, 0 (represented by +2, +4, +6 icons)
- Conservation priority:** 5 (represented by dragonfly icon)

Dragonfly deck and Disturbance deck.

Dragonfly (10 cards)

Disturbance (10 cards)

Action (10 cards)

Gameplay

- 1 Player 2 draws a dragonfly card and receives the 'Blue Featherleg'

Player 2

Player 2's hand:

- Four spotted damselfly** (Dragonfly): 4 points, 100% priority, 10% range.
- Blue Featherleg** (Dragonfly): 2 points, 100% priority, 10% range.
- Scorpius** (Predation): 5 points, 100% priority, 10% range.
- Scorpius** (Positive interaction): 1 point, 100% priority, 10% range.

Player 2's status:

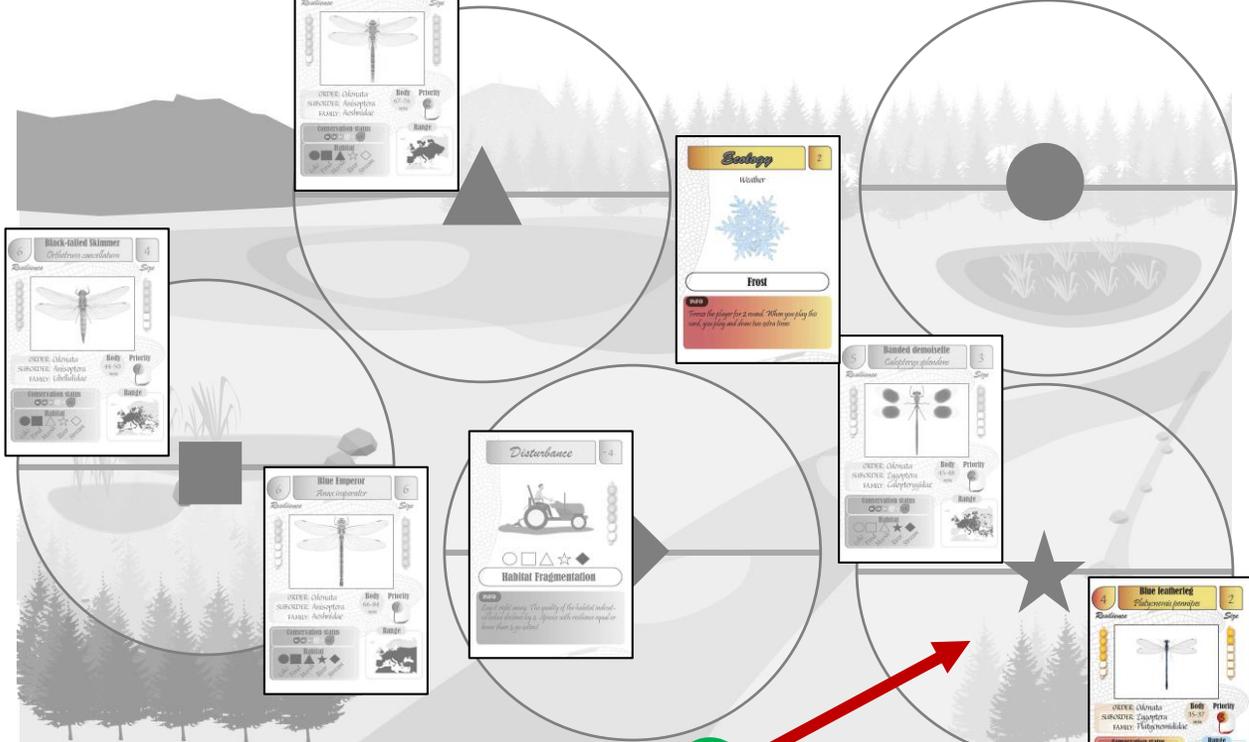
- Habitat occupied:** 1 (represented by square, triangle, circle, diamond, star icons)
- Disturbances solved:** 0, 1, 0 (represented by +2, +4, +6 icons)
- Conservation priority:** 1 (represented by dragonfly icon)



Player 1

Player 1's hand:

- Letter Emperor** (Blue Emperor dragonfly): Body Priority 62-71, Range 1000m, Habitat: Star.
- Treeline Emerald** (Green dragonfly): Body Priority 45-54, Range 1000m, Habitat: Star.
- Parasitism** (Evolutionary): Body Priority 15, Range 1000m, Habitat: Star.
- Parasitism** (Ecology): Body Priority 1, Range 1000m, Habitat: Star.
- Parasitism** (Ecology): Body Priority 1, Range 1000m, Habitat: Star.



1



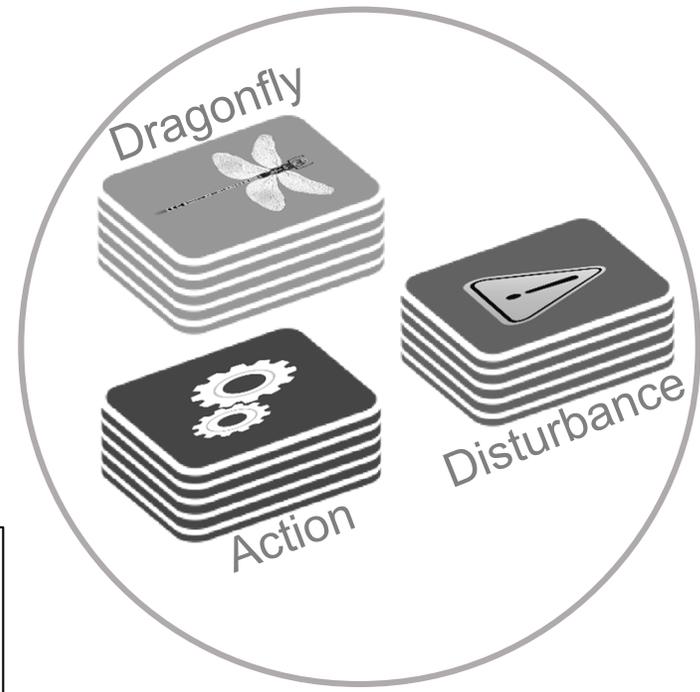
Player 2

Player 2's hand:

- Four-spined Chaser** (Blue dragonfly): Body Priority 44-53, Range 1000m, Habitat: Star.
- Blue Feathered** (Blue dragonfly): Body Priority 35-37, Range 1000m, Habitat: Star.
- Ecology** (Predation): Body Priority 5, Range 1000m, Habitat: Star.
- Ecology** (Positive interaction): Body Priority 1, Range 1000m, Habitat: Star.

Player 1's Stats:

- Habitat occupied:** 3 (Square, Triangle, Star)
- Disturbances solved:** 0, 0, 0 (+2, +4, +6)
- Conservation priority:** 5 (Star habitat)



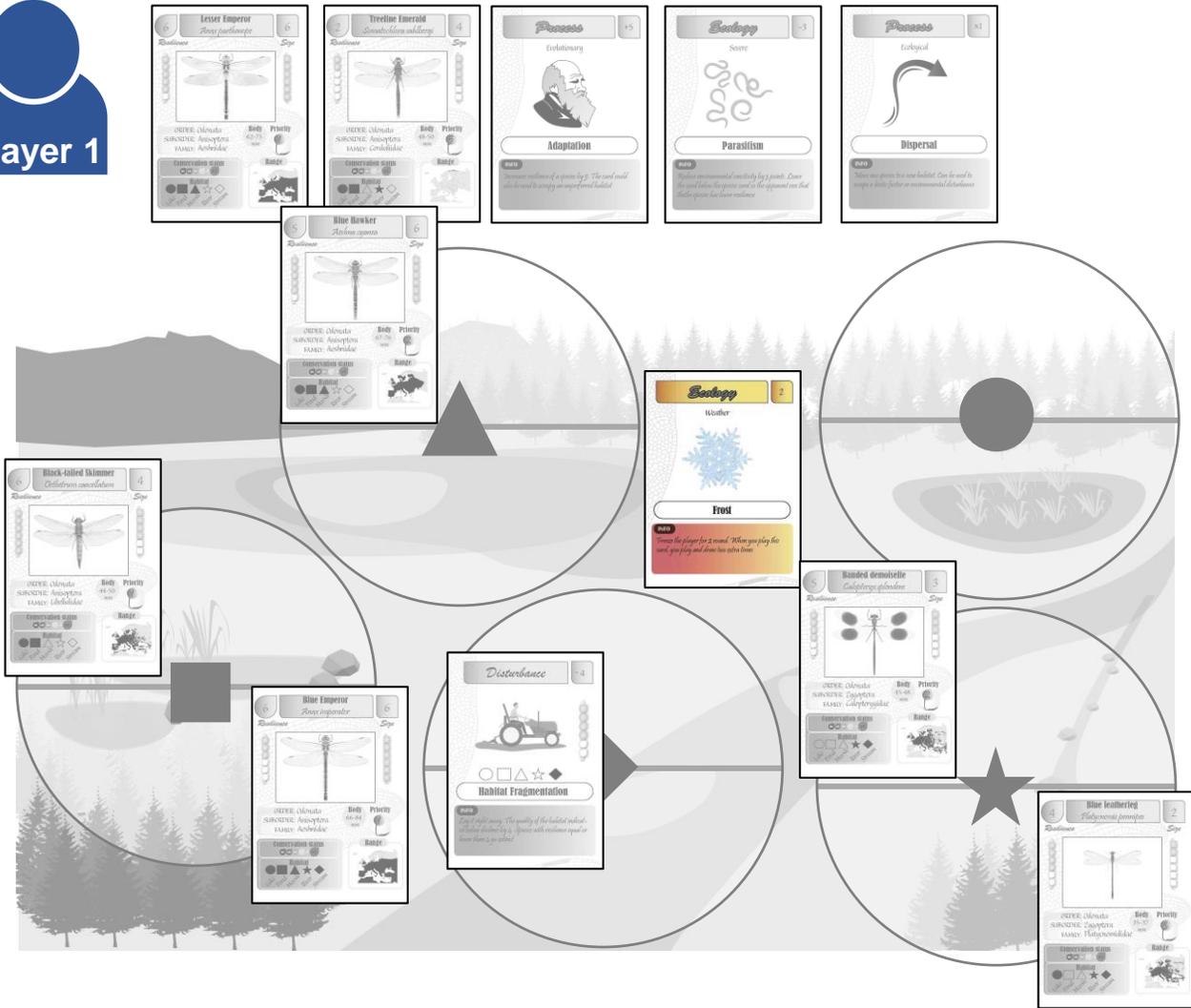
Gameplay

- Player 2 places the dragonfly card (Blue Featherleg) in the star habitat

Player 2's Stats:

- Habitat occupied:** 2 (Triangle, Star)
- Disturbances solved:** 0, 1, 0 (+2, +4, +6)
- Conservation priority:** 4 (Star habitat)

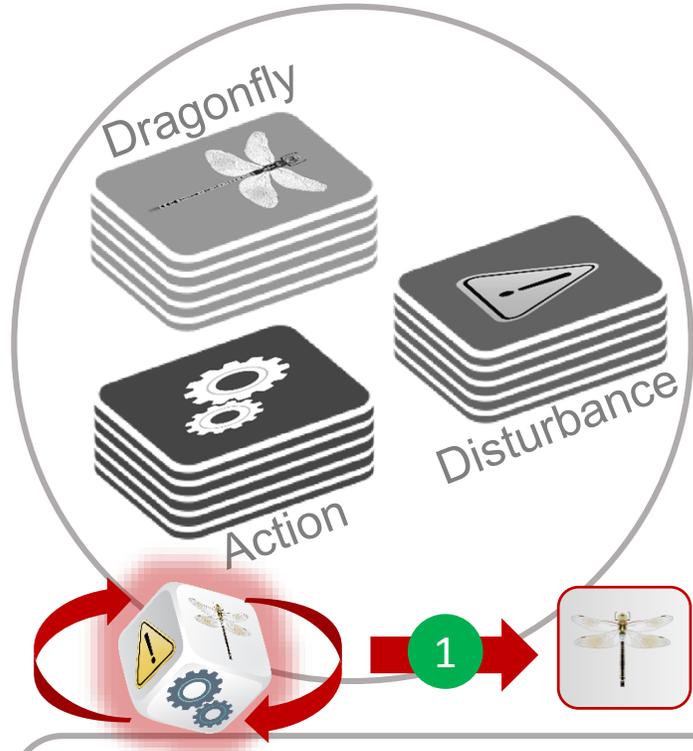
Player 1



Player 2



Habitat occupied: 3
Disturbances solved: 0, 0, 0
Conservation priority: 5



Gameplay

1 As player 1 is still frozen, Player two tosses the die again and receives the dragonfly logo

Habitat occupied: 2
Disturbances solved: 0, 1, 0
Conservation priority: 4

Player 1

Player 1's hand:

- Letter Emperor** (*Stygiopetura parvula*): 6, Body Priority 62-71, Range 1000m
- Treeline Emerald** (*Stenochirona sublonga*): 14, Body Priority 45-54, Range 1000m
- Process** (Evolutionary): 15, Adaptation
- Ecology** (Scent): -1, Parasitism
- Process** (Ecological): 11, Dispersal

Gameplay area showing a landscape with a pond and forest. A red arrow labeled '1' points from the 'Disturbance' card to the 'Dragonfly' deck.

Disturbance cards in play:

- Black-tailed Skimmer** (*Chelotriton maculatus*): 11, Body Priority 44-53, Range 1000m
- Blue Emperor** (*Zygoptera*): 6, Body Priority 60-69, Range 1000m
- Disturbance** (Habitat Fragmentation): 4, Effect: Lose 1 habitat space. The quality of the habitat reduces. Habitat is restored by 1 space with resistance equal or lower than its value.
- Ecology** (Weather): 2, Frost, Effect: Frost the player for 1 round. When you play this card, you play and draw two other cards.
- Bandied damselfly** (*Calopteryx glauconia*): 3, Body Priority 15-24, Range 1000m
- Blue leatherling** (*Polyzosteria proxima*): 12, Body Priority 35-44, Range 1000m

Player 2

Player 2's hand:

- Fresh spotted damselfly** (*Zygoptera*): 4, Body Priority 14-23, Range 1000m
- Millbrook Emerald** (*Stenochirona metallica*): 4, Body Priority 24-33, Range 1000m
- Ecology** (Predation): 5, Hawk
- Ecology** (Positive interaction): 1, Mutualism

Player 1's status:

- Habitat occupied:** 3 (represented by square, triangle, circle, diamond, star)
- Disturbances solved:** 0, 0, 0 (with +2, +4, +6 markers)
- Conservation priority:** 5 (represented by dragonfly icon)

Dragonfly deck and Disturbance/Action decks:

- Dragonfly** deck (yellow)
- Action** deck (black with gears)
- Disturbance** deck (black with warning sign)

Gameplay

- Player 2 draws a dragonfly card and obtains the 'Brilliant Emerald'

Player 2's status:

- Habitat occupied:** 2 (represented by square, triangle, circle, diamond, star)
- Disturbances solved:** 0, 1, 0 (with +2, +4, +6 markers)
- Conservation priority:** 4 (represented by dragonfly icon)

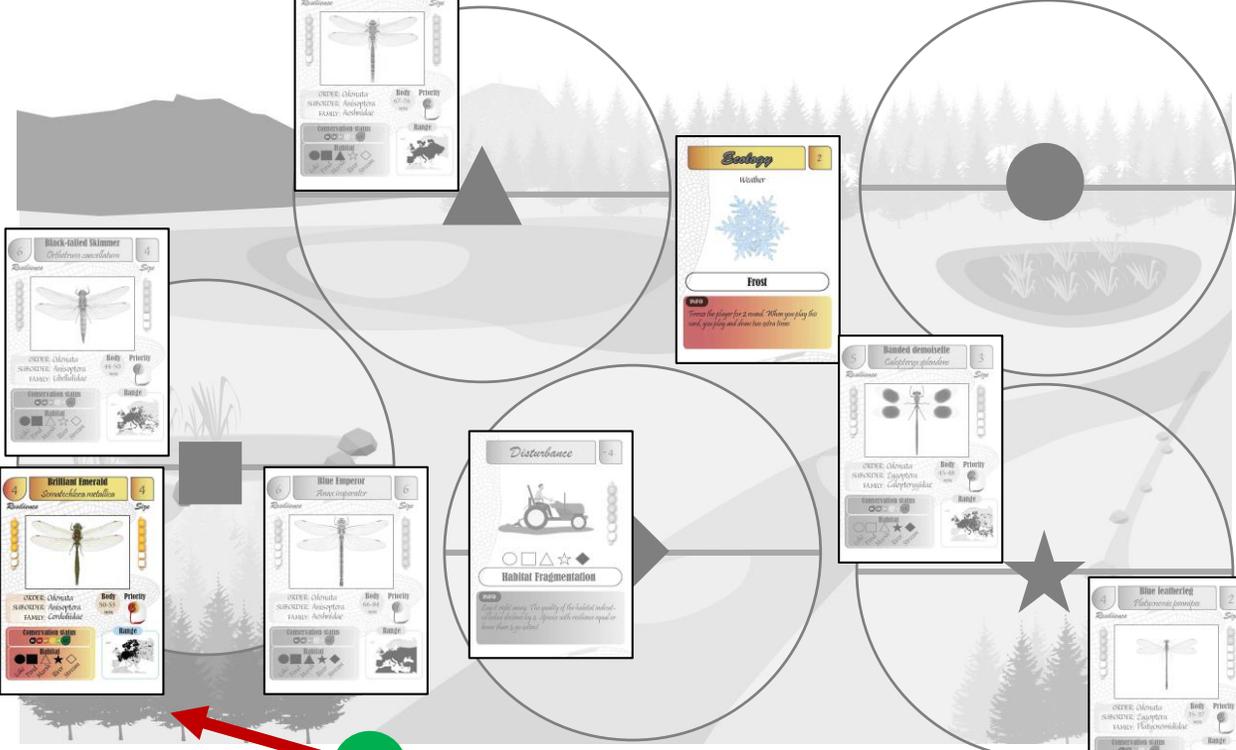


Player 1

Player 1's hand:

- Letter Emperor** (Score: 6): *Stacy partridge*
- Treeline Emerald** (Score: 12): *Saintscholera ambigua*
- Process** (Score: 15): Evolutionary
- Ecology** (Score: -1): Parasitism
- Process** (Score: 11): Ecological

Blue Hawker (Score: 6): *Aeschna cyanea*



1



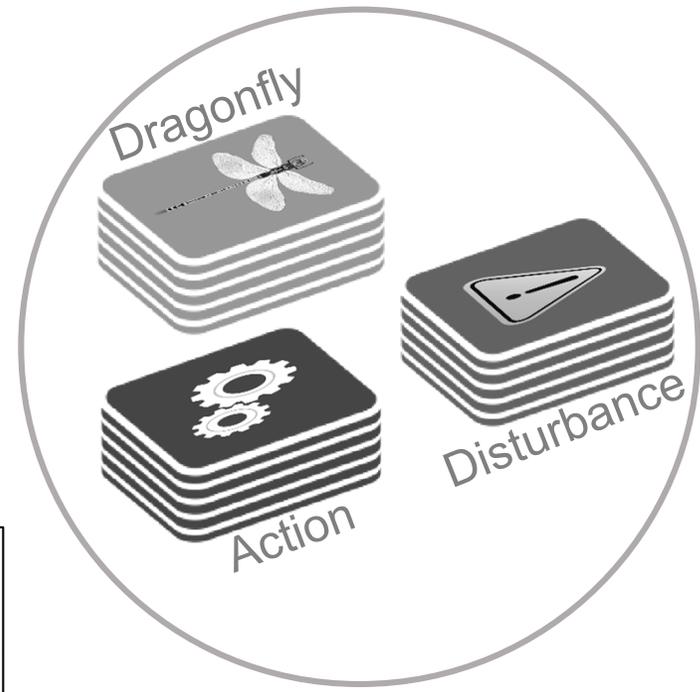
Player 2

Player 2's hand:

- Fawn-spotted damselfly** (Score: 4): *Zygoptera quadrimaculata*
- Brilliant Emerald** (Score: 4): *Saintscholera metallica*
- Ecology** (Score: 5): Predator
- Ecology** (Score: -1): Positive interaction

Player 1's status:

- Habitat occupied:** 3 (represented by square, triangle, circle, diamond, star)
- Disturbances solved:** 0, 0, 0 (represented by +2, +4, +6 buttons)
- Conservation priority:** 5 (represented by dragonfly icon)



Gameplay

- 1 Player 2 places the Brilliant Emerald in the square habitat

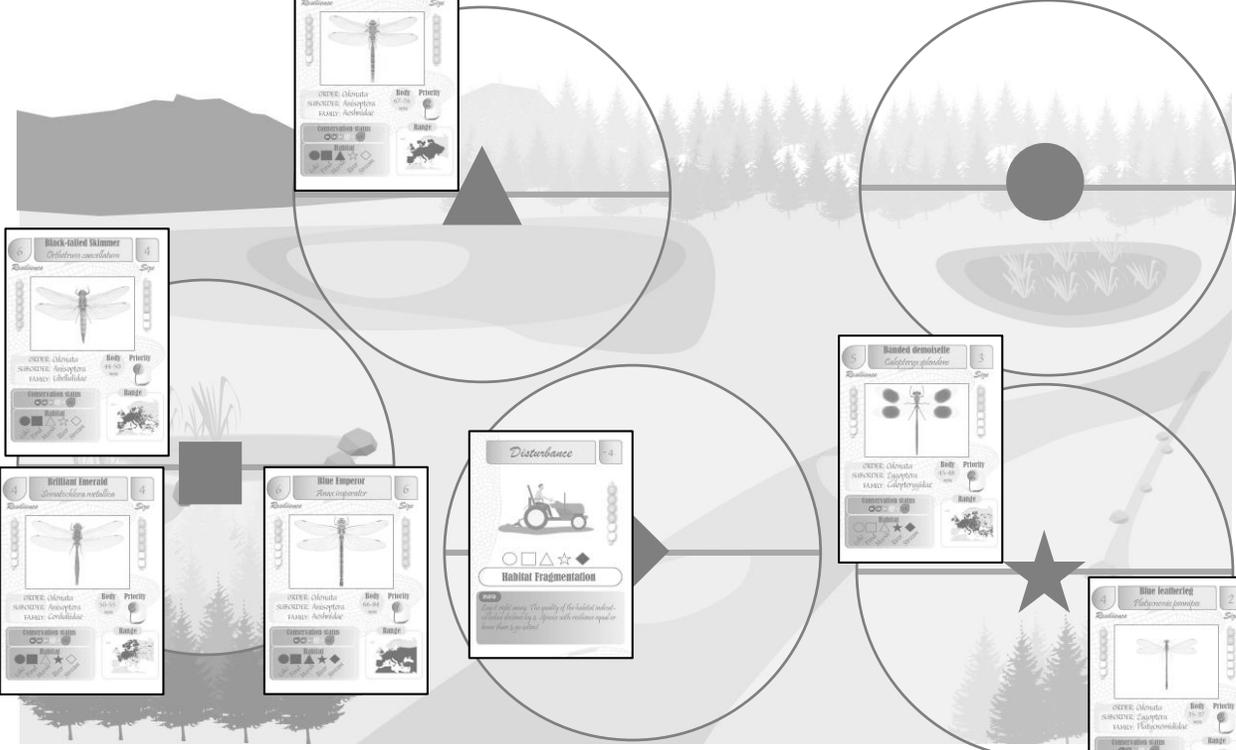
Player 2's status:

- Habitat occupied:** 2 (represented by triangle, circle, diamond, star)
- Disturbances solved:** 0, 1, 0 (represented by +2, +4, +6 buttons)
- Conservation priority:** 7 (represented by dragonfly icon)



Player 1

Lesser Emperor *Aeshya parietaria* | **Tree-line Emerald** *Stenonema sublineatum* | **Parasitism** | **Ecology** | **Parasitism**



Black-tailed Skimmer *Chelotera cancellata* | **Blue Emperor** *Zygoptera* | **Black-tailed Skimmer** | **Blue Emperor**

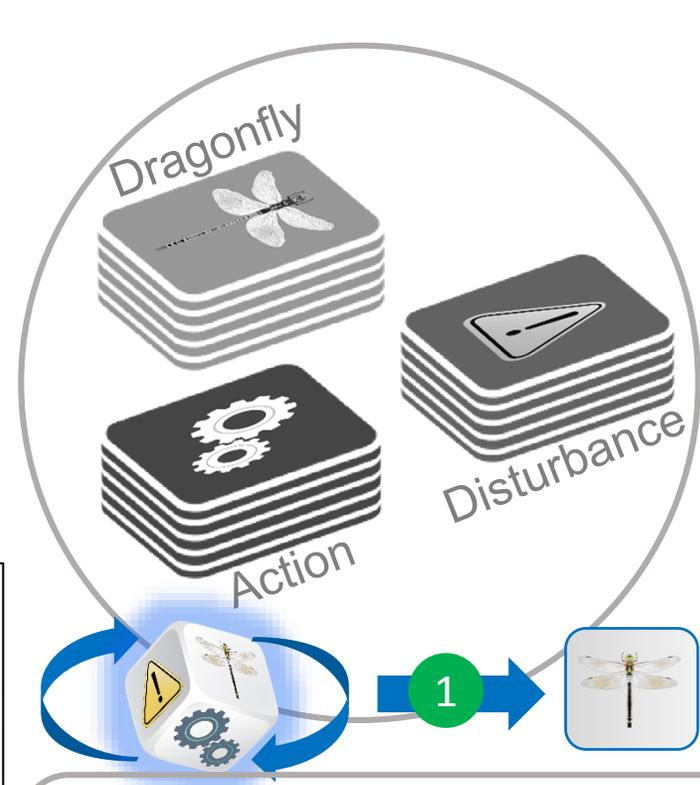
Bandol damselfly *Calopteryx glauconia* | **Blue leathering** *Polyzosteria proxima*



Player 2

Four-spined chaser *Zygoptera* | **Ecology** | **Ecology**

Habitat occupied: 3
Disturbances solved: +2, +4, +6 (0, 0, 0)
Conservation priority: 5



Gameplay

1 Player 1 rolls the dice and obtain the dragonfly logo

Habitat occupied: 2
Disturbances solved: +2, +4, +6 (0, 1, 0)
Conservation priority: 7



Player 1

Lesser Emperor *Pterodon perla* 6

Treeline Emerald *Stenochorina rubra* 11

Poecilosia *Poecilosia* 15

Scorpaenidae *Scorpaenidae* 1

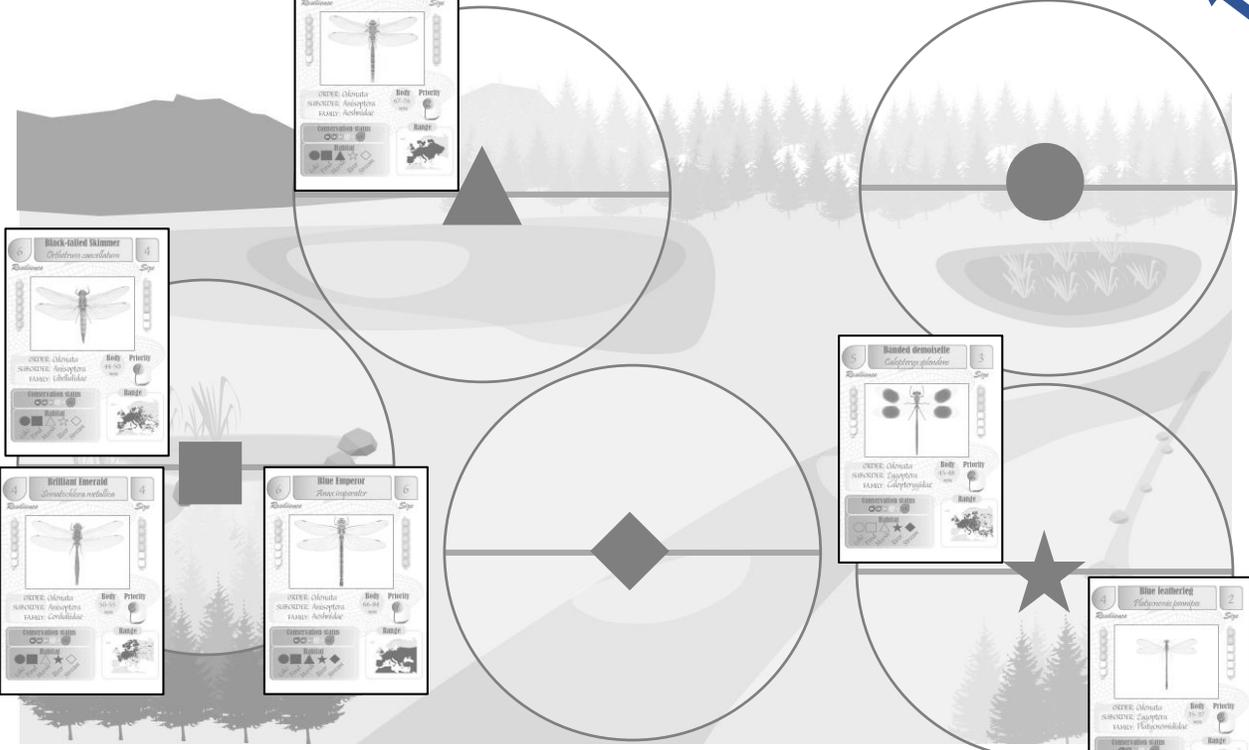
Poecilosia *Poecilosia* 11

Ruddy darter *Stiphodon rufus* 5

Habitat occupied: 3

Disturbances solved: 0, 0, 0

Conservation priority: 5



1

Dragonfly

Action

Disturbance

Gameplay

1 Player 1 draws a dragonfly card and obtains the Ruddy darter



Player 2

Four-spined chaser *Zygoptera quadrispinosa* 4

Scorpaenidae *Scorpaenidae* 5

Scorpaenidae *Scorpaenidae* 1

Habitat occupied: 2

Disturbances solved: 0, 1, 0

Conservation priority: 7



Player 1

Game board for Player 1 showing various dragonfly cards and habitats. A red dragonfly card (Ruddy darter) is being placed into a circle habitat. The board includes cards for Lesser Emperor, Tree-line Emerald, Pheasant, Sculpin, Ruddy darter, Blue Hawker, Black-tailed Skimmer, Brilliant Emerald, Blue Emperor, and Banded damselfly. A 'Disturbance' card (Habitat Fragmentation) is also present. A green circle with the number '1' and a blue arrow points to the Ruddy darter card being placed.

Habitat occupied: 4

Disturbances solved: +2, +4, +6 (0, 0, 0)

Conservation priority: 6

Diagram of a dragonfly habitat circle. It contains three stacks of cards: Dragonfly (with a dragonfly icon), Action (with a gear icon), and Disturbance (with a warning sign icon).

Gameplay

1 Player 1 places a dragonfly card (Ruddy darter) in the circle habitat



Player 2

Dragonfly cards for Player 2: Four-spined chaser, Hawk, and Mutualism.

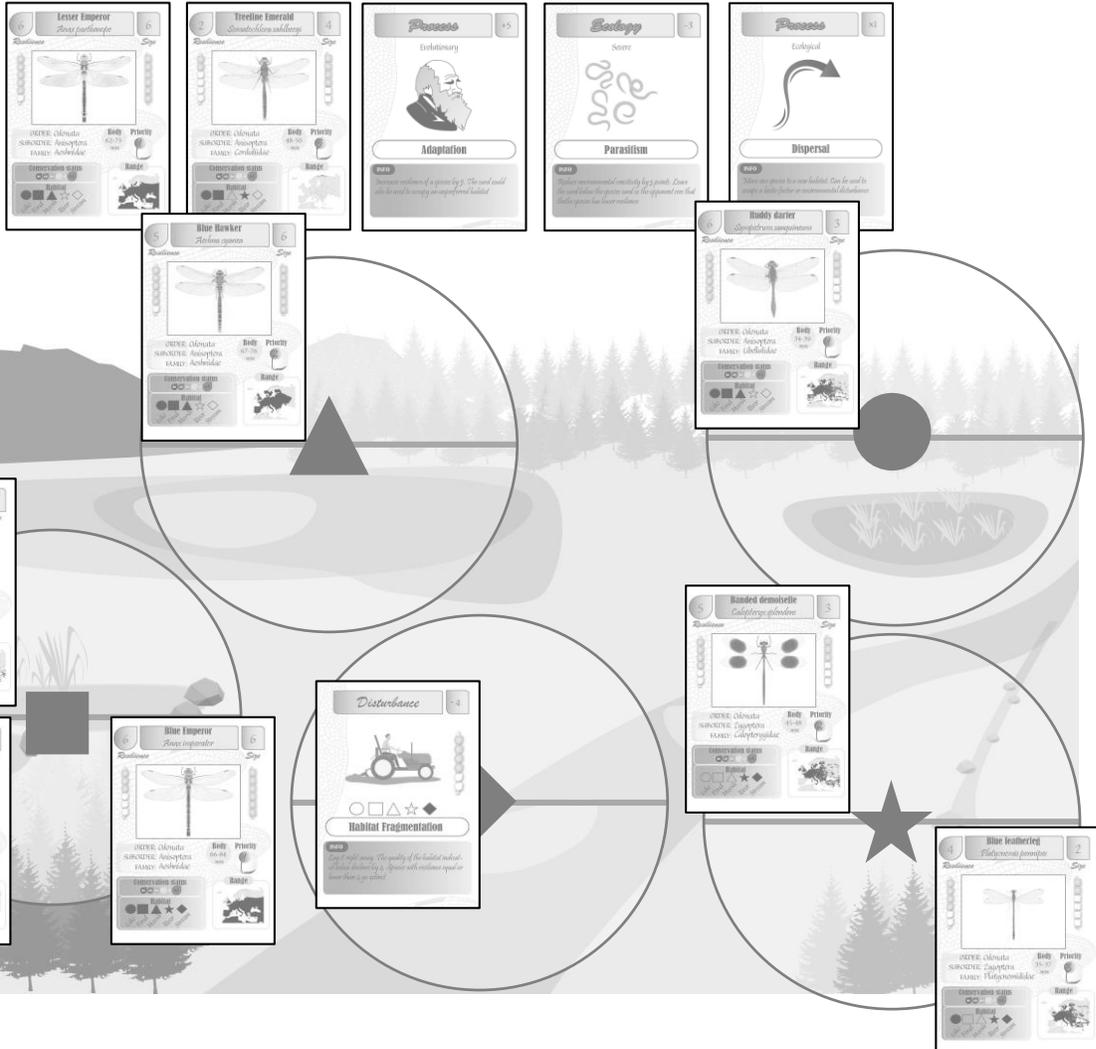
Habitat occupied: 2

Disturbances solved: +2, +4, +6 (0, 1, 0)

Conservation priority: 7



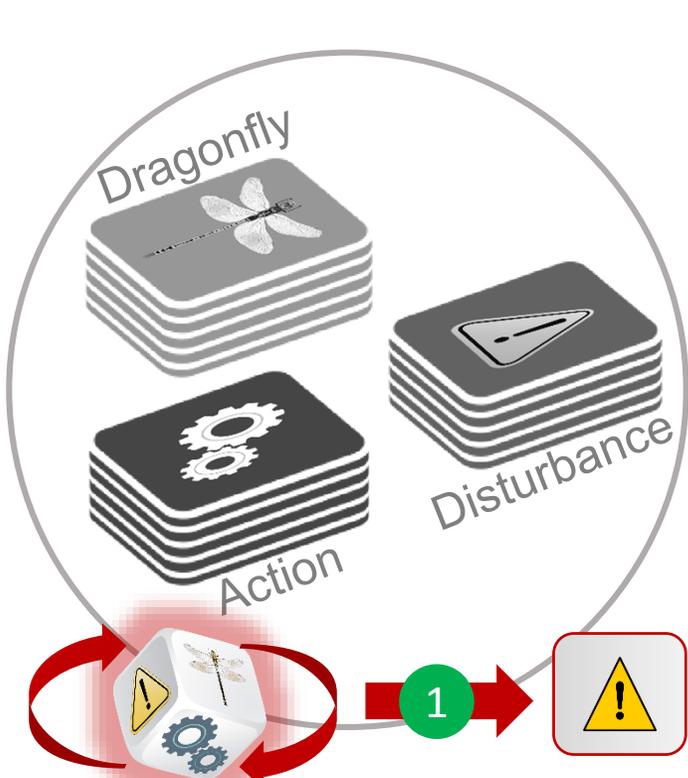
Player 1



Habitat occupied: 4

Disturbances solved: 0, 0, 0

Conservation priority: 6



Gameplay

1 Player 2 rolls the dice and obtain the disturbance card



Player 2



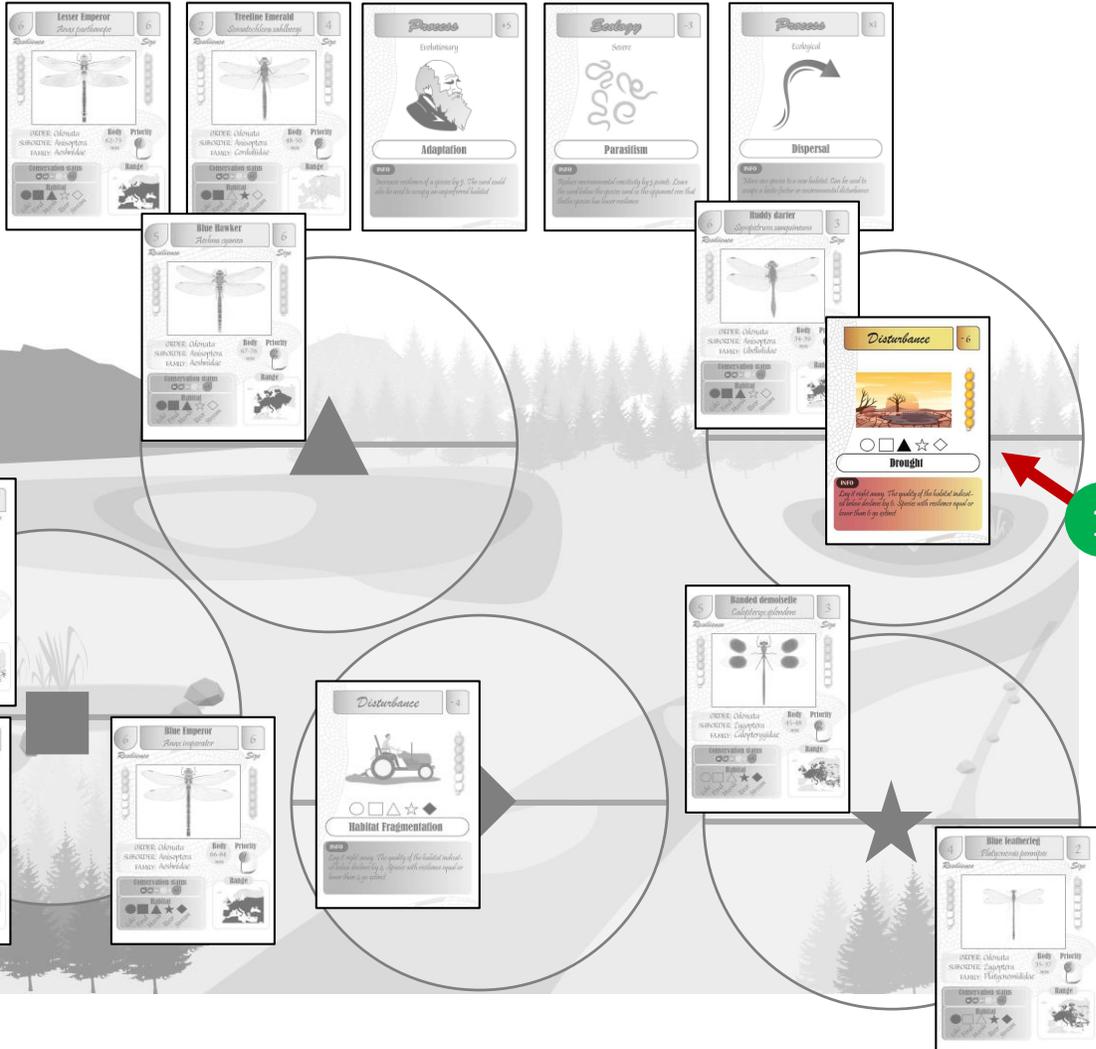
Habitat occupied: 2

Disturbances solved: 0, 1, 0

Conservation priority: 7



Player 1



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 4

Disturbances solved
 (+2) (+4) (+6) → 0 0 0

Conservation priority
 [Dragonfly] → 6

Dragonfly

Disturbance -6
 [Drought] [5 icons]

INFO
 Lay it right away. The quality of the habitat indicated below declines by 6. Species with resilience equal or lower than 6 go extinct.

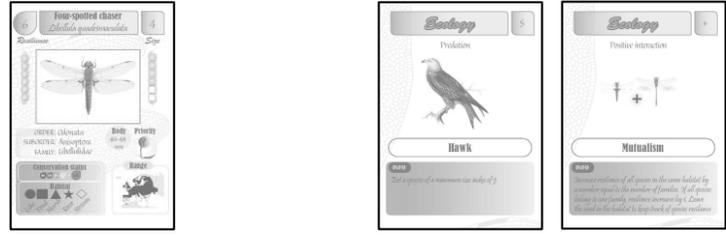
Disturbance

Gameplay

1 The disturbance is Drought (severe) for the circle habitat which should kill any dragonfly in the habitat



Player 2

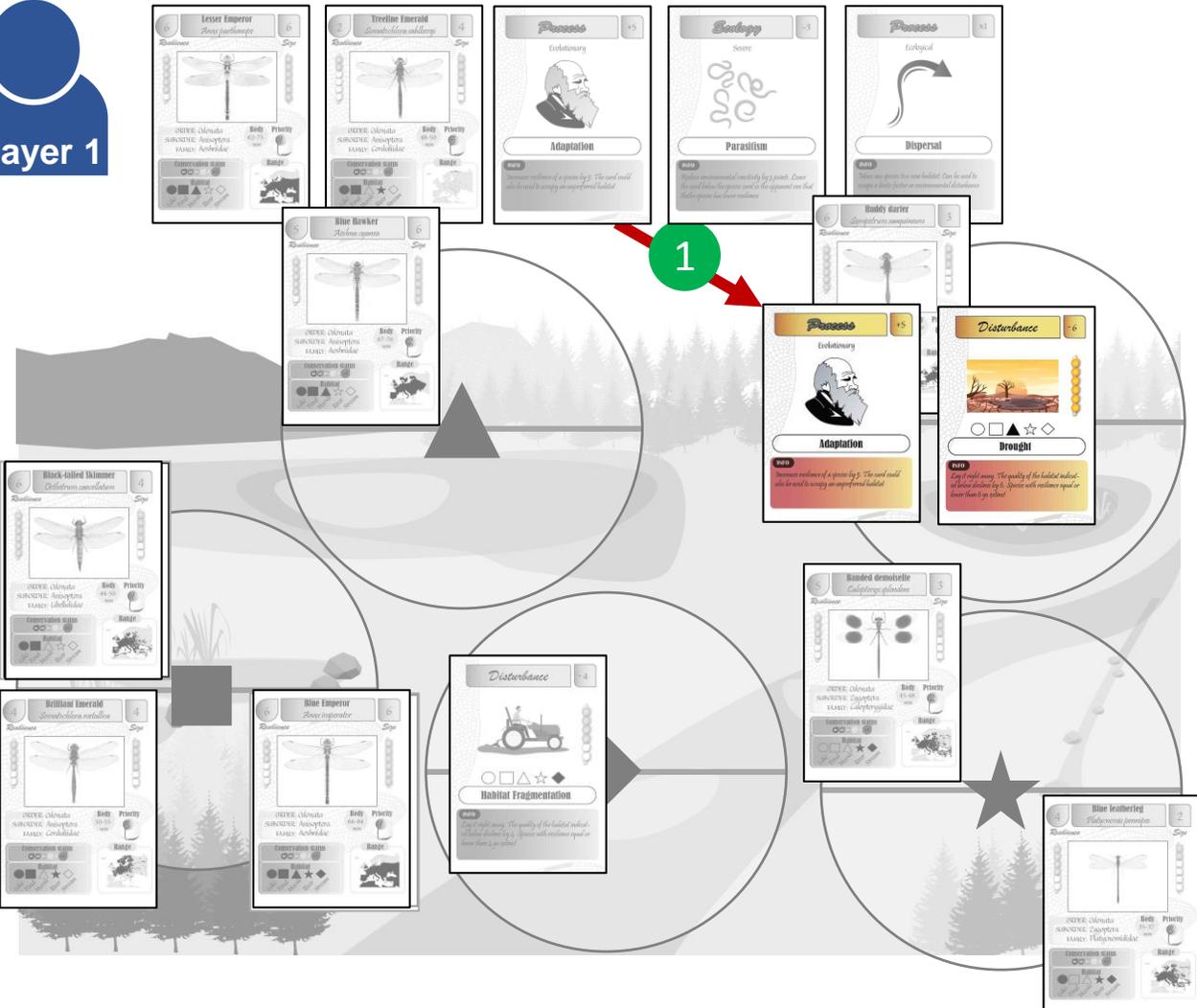


Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 2

Disturbances solved
 (+2) (+4) (+6) → 0 1 0

Conservation priority
 [Dragonfly] → 7

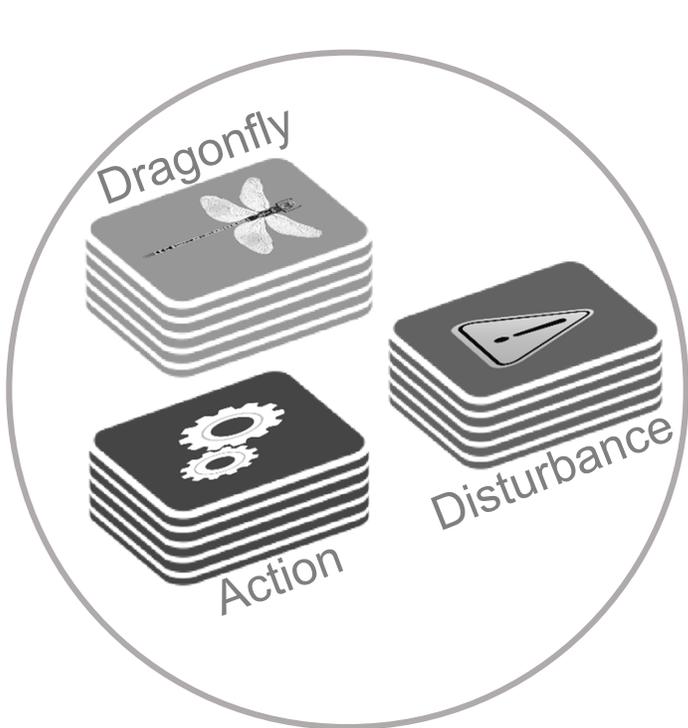
Player 1



Habitat occupied: 4

Disturbances solved: 0, 0, 0

Conservation priority: 6



Gameplay

1 Player 1 defends the dragonfly by using 'Adaptation card' which allows the species to obtain an extra 5 resilience points.

Player 2



Habitat occupied: 2

Disturbances solved: 0, 1, 0

Conservation priority: 7



Player 1

Letter Emperor
Stylogastera parvula

Treeline Emerald
Stenochorina sublineata

Scorpius
Scorpius

Parasitism

Parasitism
Scorpius

Parasitism
Scorpius

Ruddy darter
Stygopetras simpliciter

Disturbance
Drought

Banded damselfly
Calopteryx glauconia

Blue leatherhead
Polyura praxinos

Disturbance
Habitat Fragmentation

Black-tailed Skimmer
Chilostoma caeruleum

Bright Emerald
Stenochorina reticulata

Blue Emperor
Zygoptera

Four-spined damselfly
Zygoptera

Scorpius
Proximal

Hawk

Scorpius
Positive interaction

Mutualism

Habitat occupied: 4

Disturbances solved: 0, 0, 0

Conservation priority: 6

Dragonfly

Action

Disturbance

Gameplay

1 So, the Ruddy darter survives, but the disturbance still persists in the habitat



Player 2

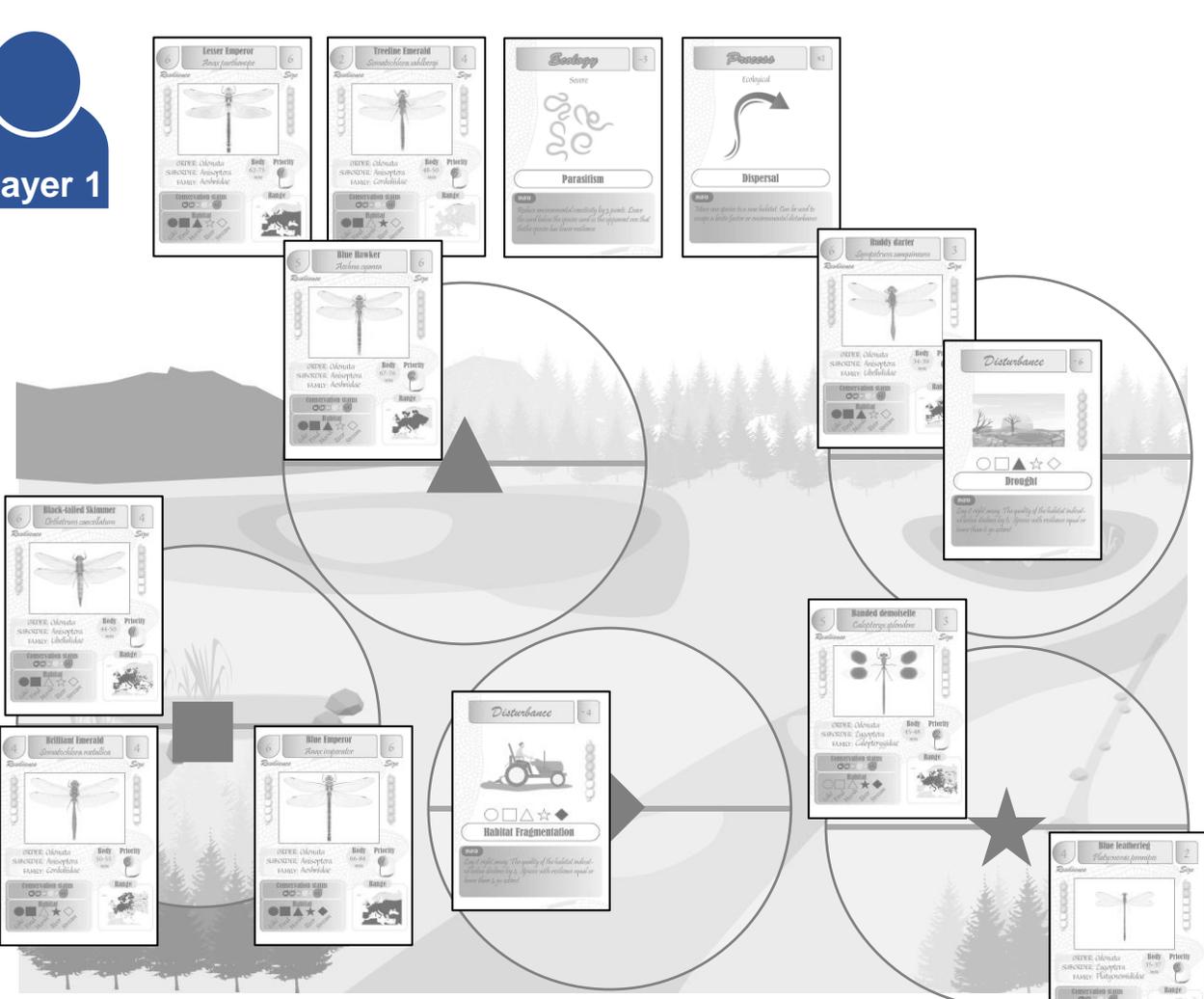
Habitat occupied: 2

Disturbances solved: 0, 1, 0

Conservation priority: 7



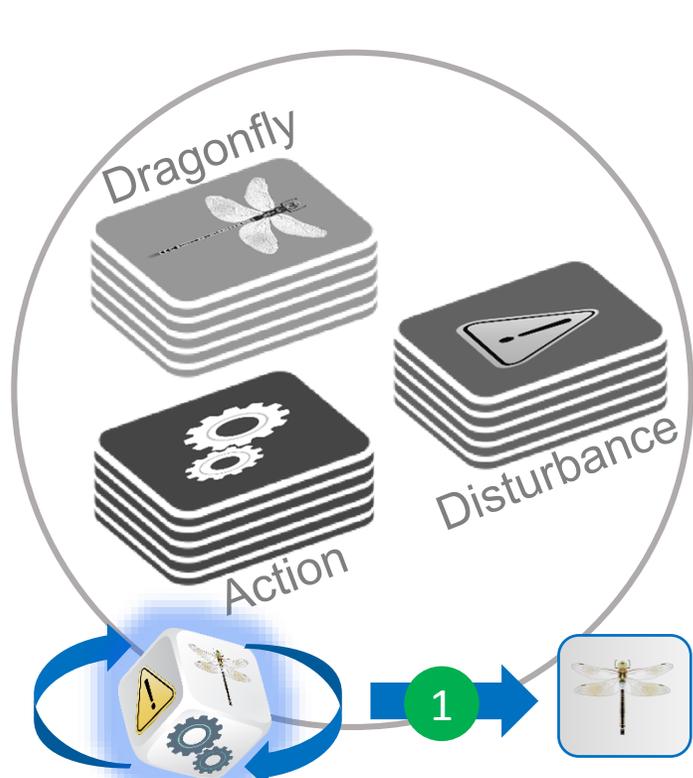
Player 1



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 4

Disturbances solved
 (+2) (+4) (+6) → 0 0 0

Conservation priority
 [Dragonfly Logo] → 6



Gameplay

1 Player 1 rolls the dice and obtain the dragonfly logo



Player 2

Blue-spotted Chaser
Libellula quadrimaculata

Hawk
Buteo swainsoni

Mutualism

Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 2

Disturbances solved
 (+2) (+4) (+6) → 0 1 0

Conservation priority
 [Dragonfly Logo] → 7



Player 1

Lesser Emperor *Stygiopetura parvula* 6

Treeline Emerald *Stenochorina sublingua* 11

Scorfly *Scorfly* 3

Pheasant *Pheasant* 11

Common Spreadingwing *Lepta stans* 5

Blue Hawker *Zygoptera* 6

Blue Hawker *Zygoptera* 5

Disturbance

Drought

Black-tailed Skimmer *Chelotera caeruleata* 11

Bronze Emerald *Stenochorina metallica* 4

Blue Emperor *Zygoptera* 6

Disturbance

Habitat Fragmentation

Bandied damselfly *Calopteryx glauclia* 5

Blue leatherwing *Phlegethon prasinus* 12

Four-spined damselfly *Libellula quadrimaculata* 11

Scorfly

Predation

Hawk

Scorfly

Positive interaction

Mutualism

Habitat occupied: 4

Disturbances solved: 0, 0, 0

Conservation priority: 6

1

Dragonfly

Action

Disturbance

Gameplay

1 Player 1 draws a dragonfly card and obtains the 'Common Spreadingwing'



Player 2

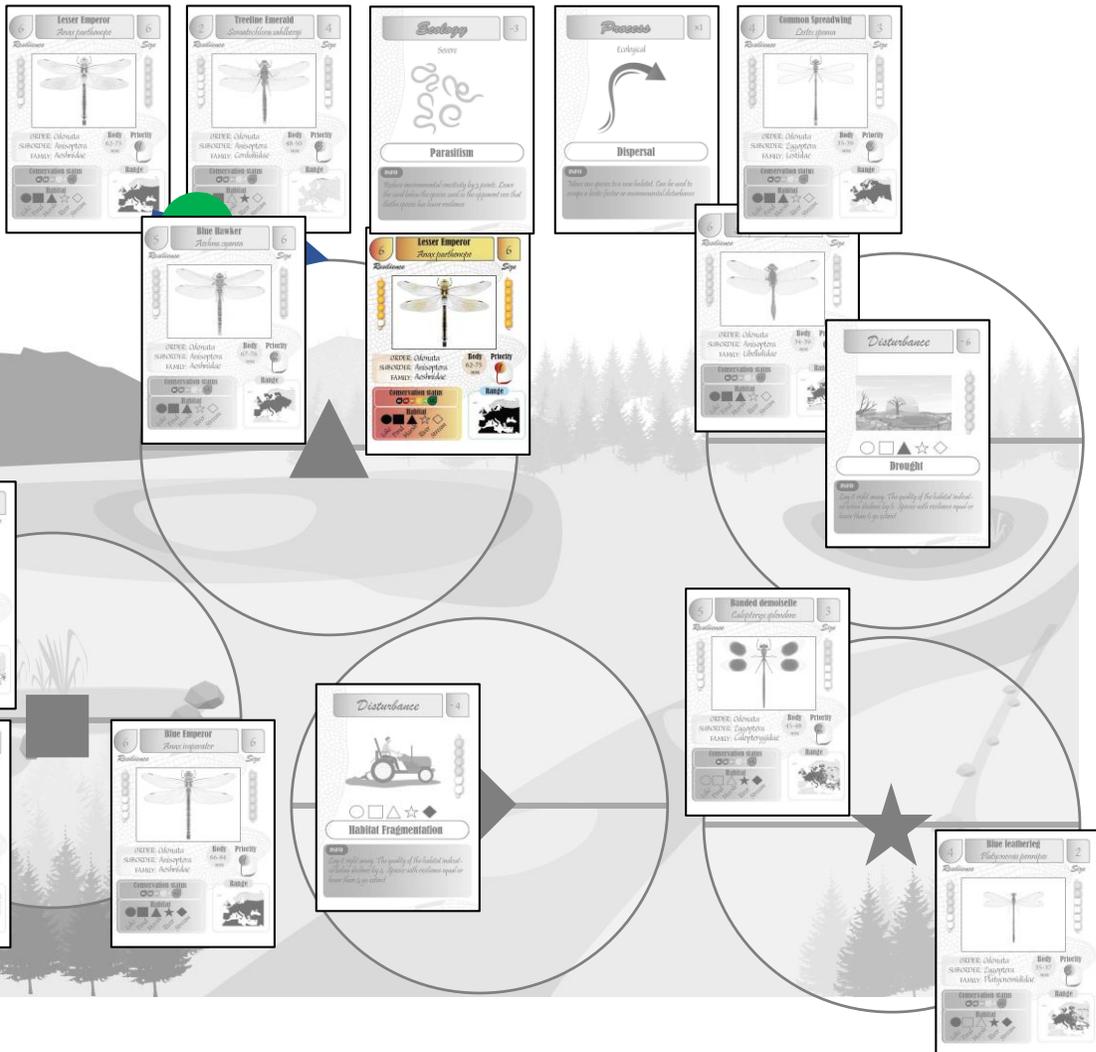
Habitat occupied: 2

Disturbances solved: 0, 1, 0

Conservation priority: 7



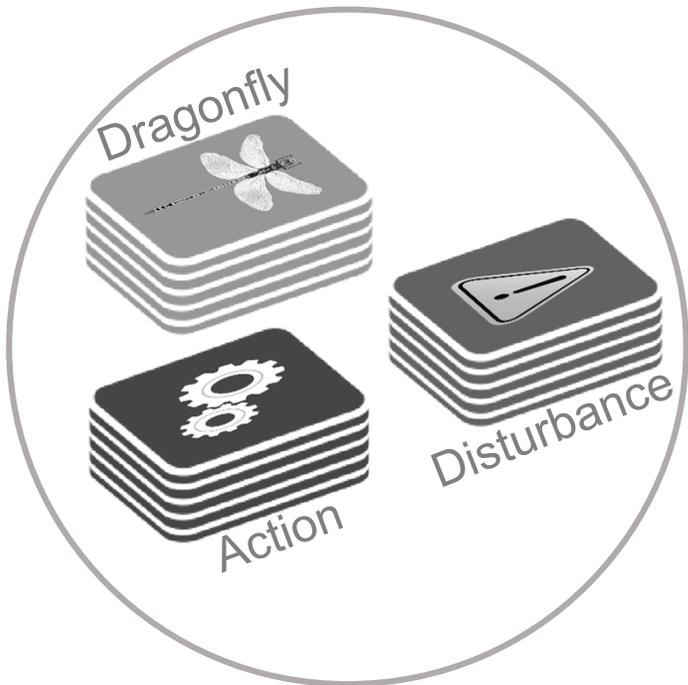
Player 1



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 4

Disturbances solved
 (+2) (+4) (+6) → 0 0 0

Conservation priority
 [Dragonfly] → 7



Gameplay

1 Player 1 places a dragonfly card (Lesser Emperor) in the triangle habitat



Player 2



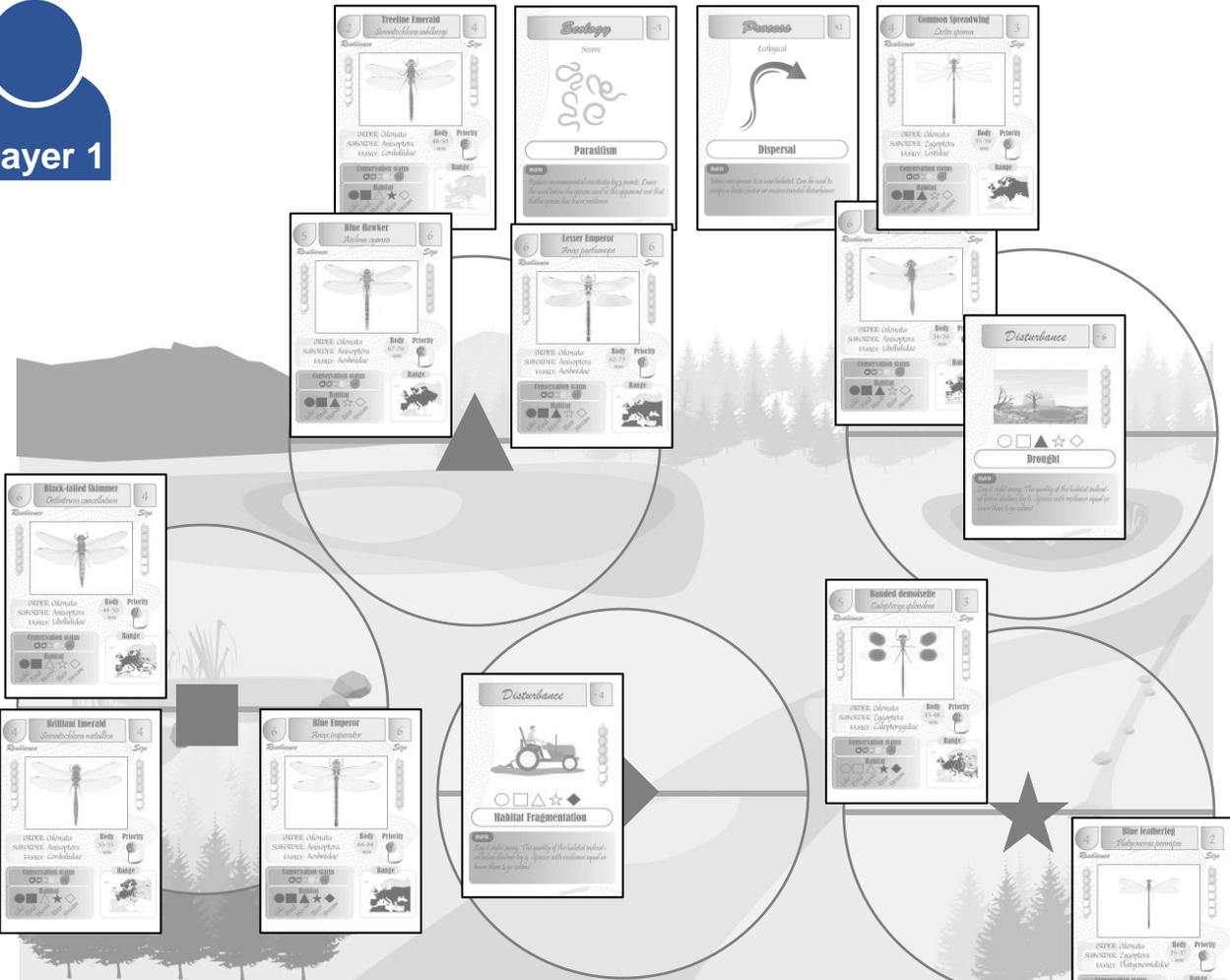
Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 2

Disturbances solved
 (+2) (+4) (+6) → 0 1 0

Conservation priority
 [Dragonfly] → 7



Player 1



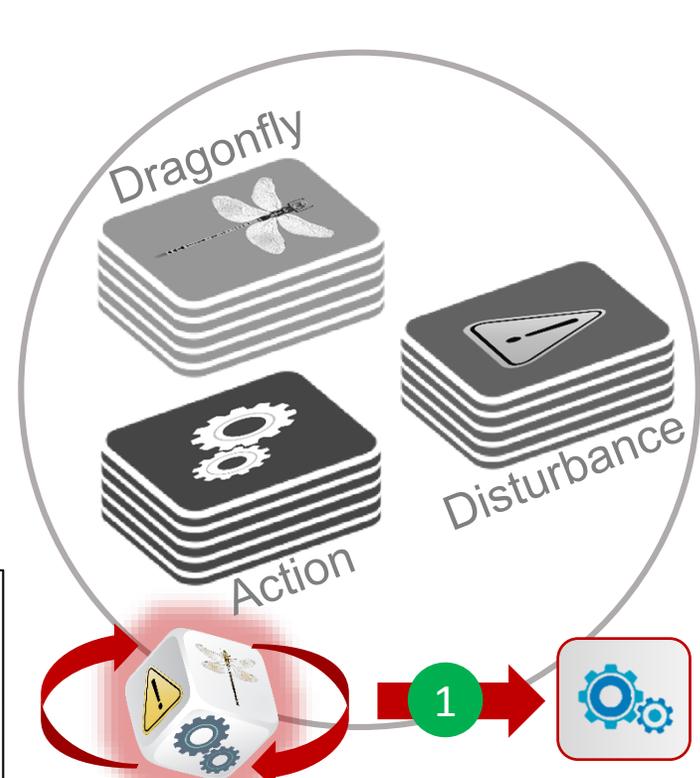
Player 2



Habitat occupied
 4

Disturbances solved
 +2 0, +4 0, +6 0

Conservation priority
 7



Gameplay

1 Player 2 rolls the dice and obtain the action logo

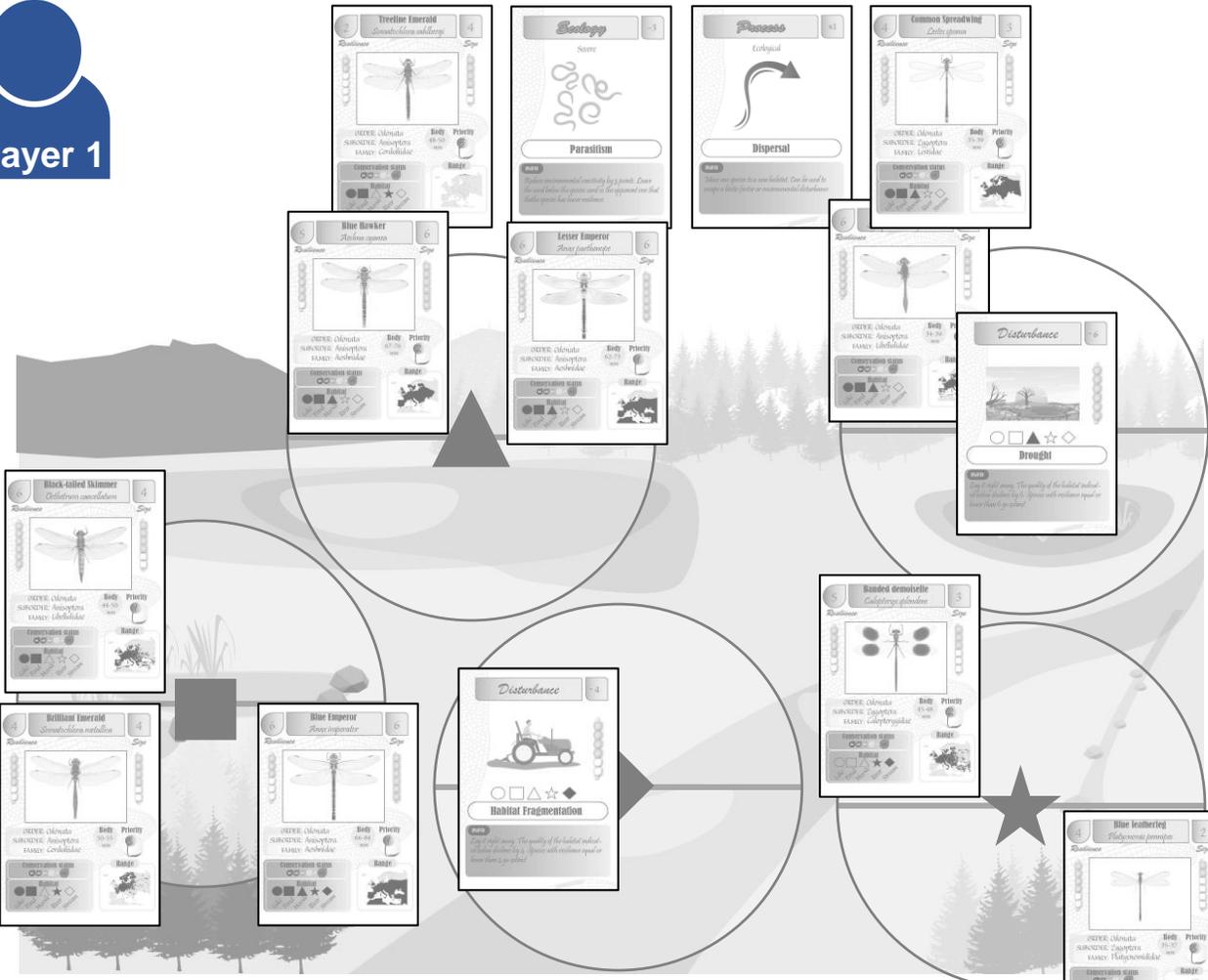
Habitat occupied
 2

Disturbances solved
 +2 0, +4 1, +6 0

Conservation priority
 7



Player 1



Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 4

Disturbances solved
 (+2) (+4) (+6) → 0 0 0

Conservation priority
 [Dragonfly] → 7

Dragonfly

Action

Disturbance

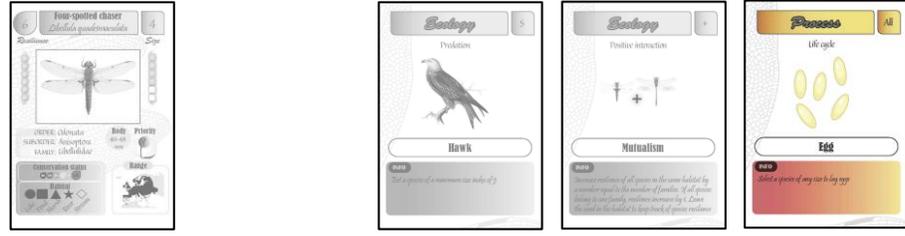
1

Gameplay

1 Player 2 draws an action card and receives an 'Egg'



Player 2



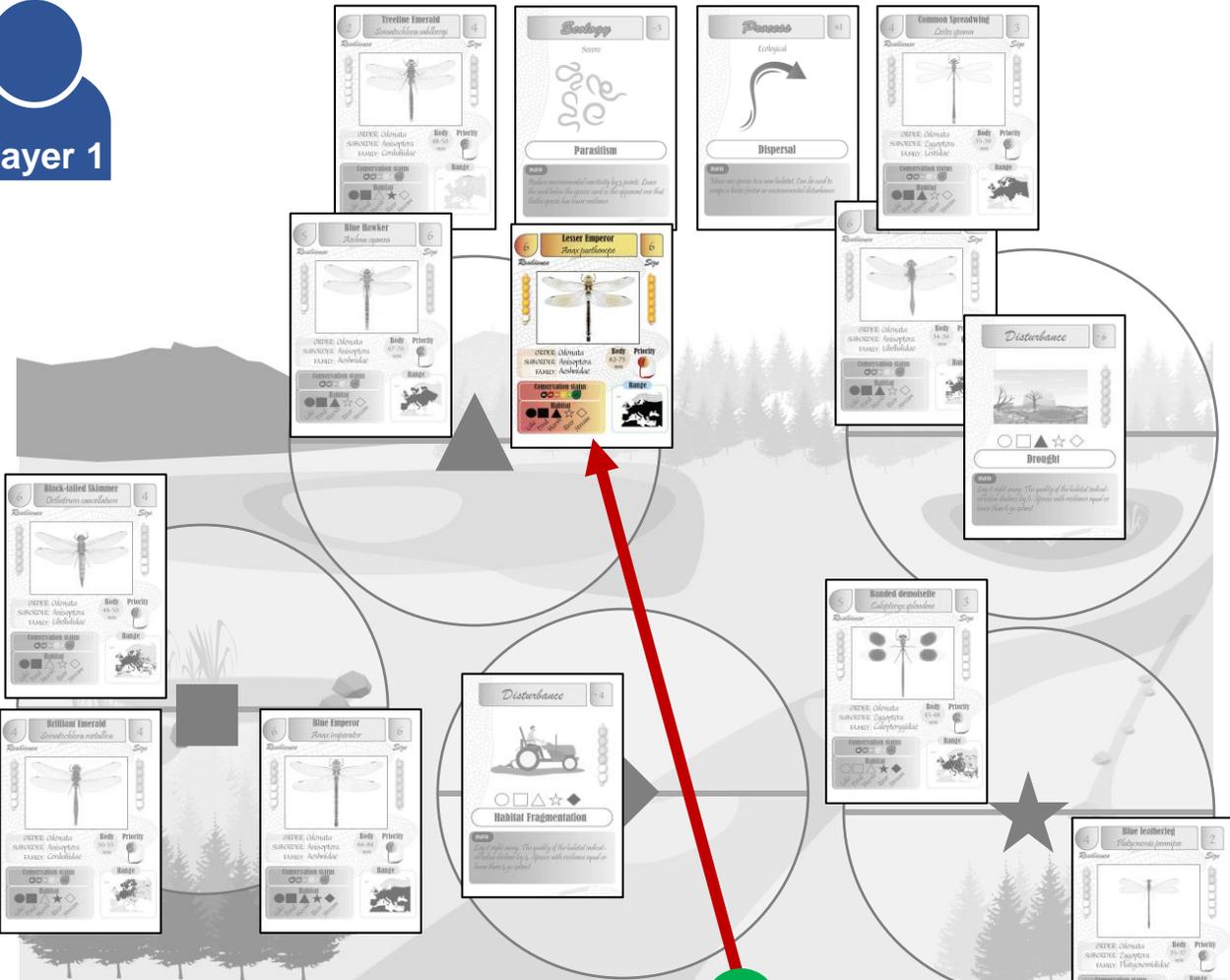
Habitat occupied
 [Square] [Triangle] [Circle] [Diamond] [Star] → 2

Disturbances solved
 (+2) (+4) (+6) → 0 1 0

Conservation priority
 [Dragonfly] → 7



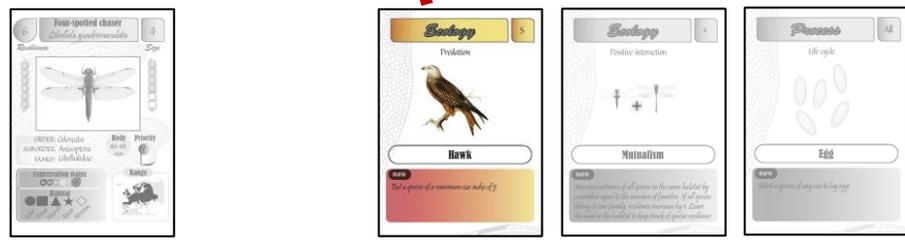
Player 1



1



Player 2



Habitat occupied

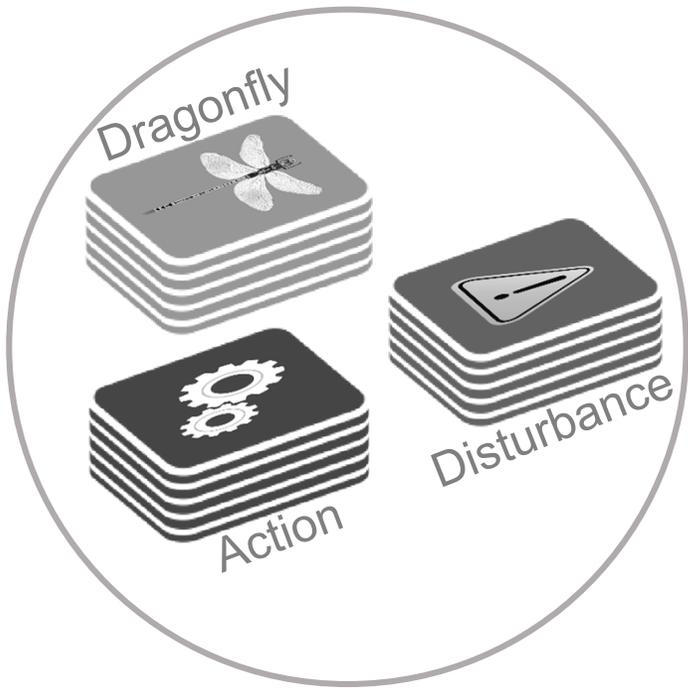
 4

Disturbances solved

 0 0 0

Conservation priority

 7



Gameplay

1 Player 2 attempt to use predation (Hawk) on the Lesser Emperor in the triangle habitat.

Habitat occupied

 3

Disturbances solved

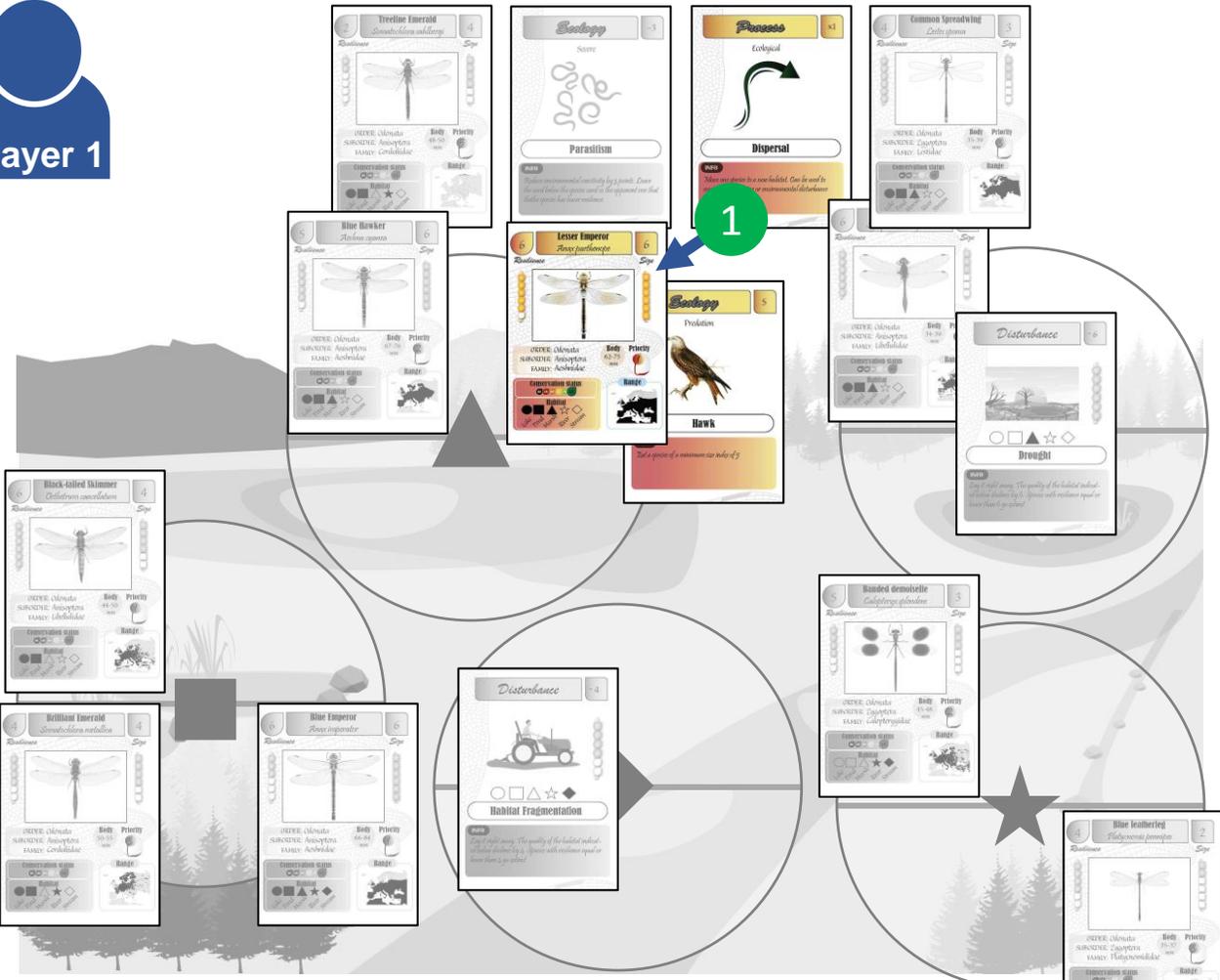
 0 1 0

Conservation priority

 7



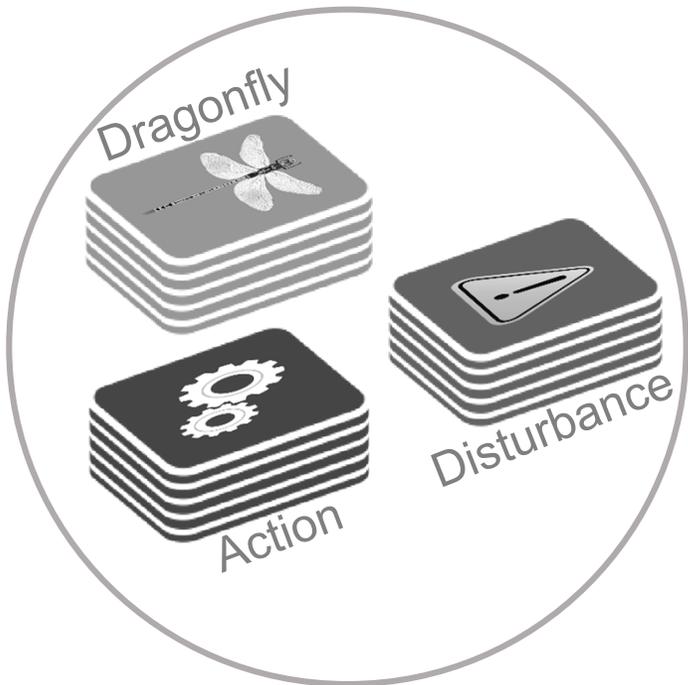
Player 1



Habitat occupied
 4

Disturbances solved
 0 0 0

Conservation priority
 7



Gameplay

1 Player 1 defends the dragonfly using 'Dispersal' and moves the dragonfly to a different habitat



Player 2



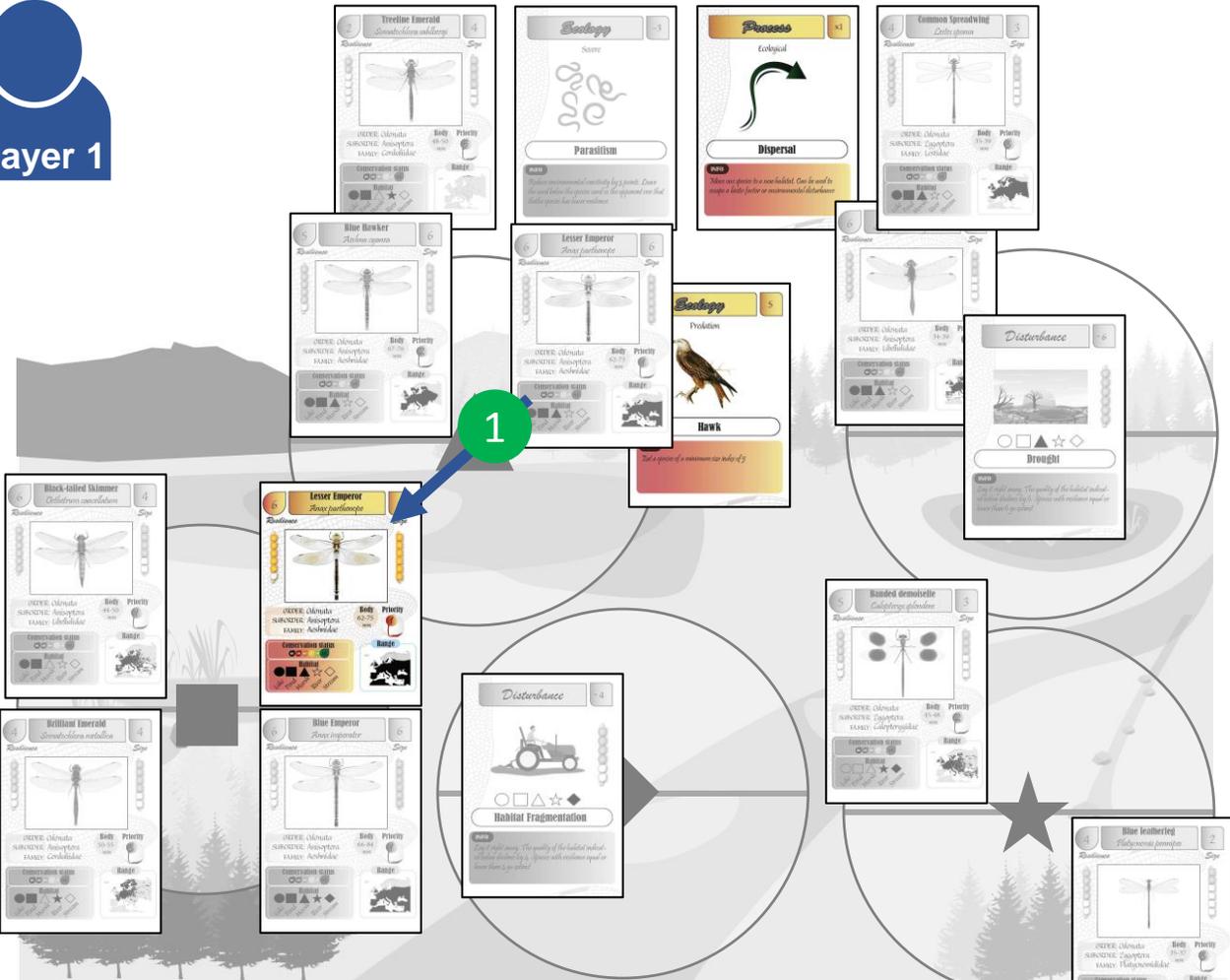
Habitat occupied
 2

Disturbances solved
 0 1 0

Conservation priority
 7



Player 1



Habitat occupied
 4

Disturbances solved
 0 0 0

Conservation priority
 7

Dragonfly
 Action
 Disturbance

Gameplay

1 Player 1 moves the Lesser Emperor to the square habitat



Player 2

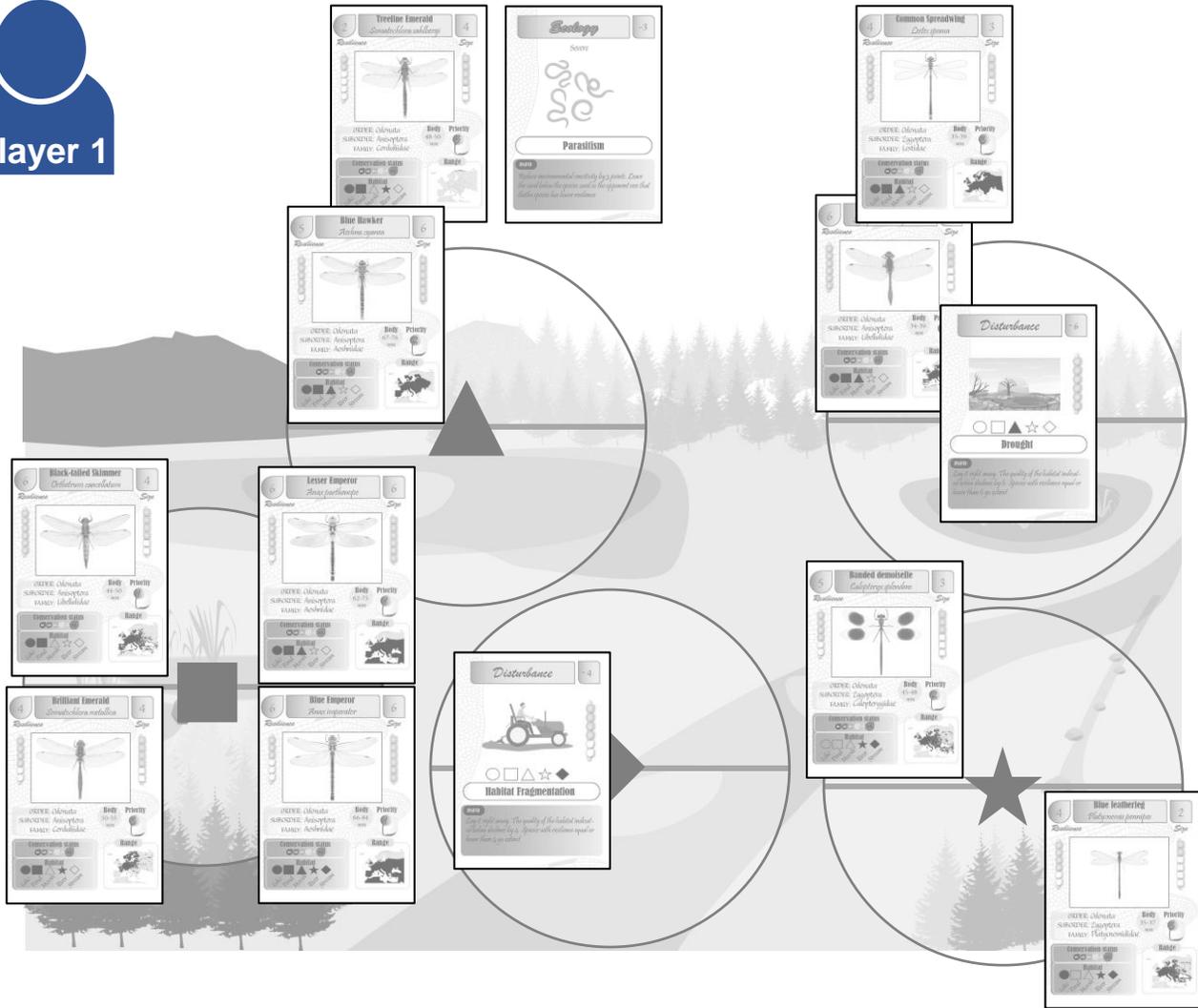


Habitat occupied
 2

Disturbances solved
 0 1 0

Conservation priority
 7

Player 1



Player 2

Ecology
Dishy interaction
Mutualism

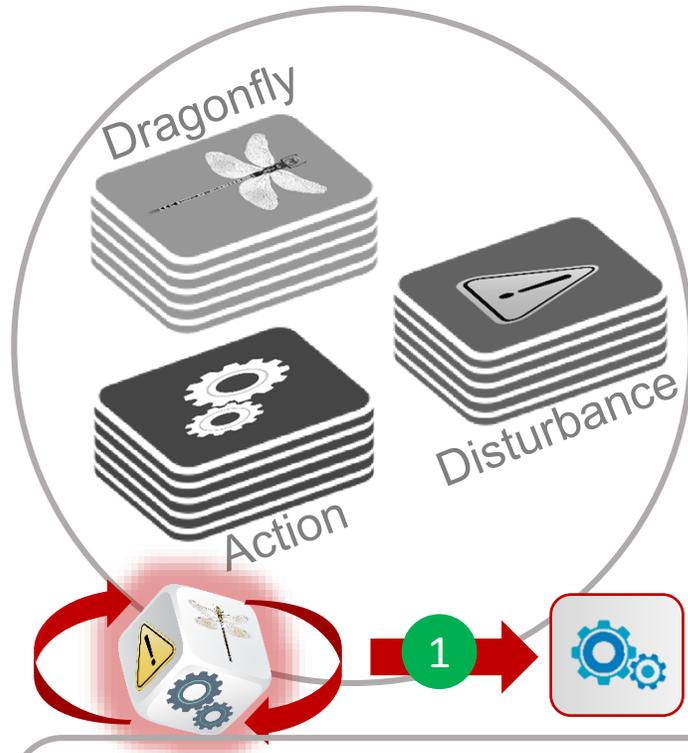
Process
life cycle
Egg

Four spotted damselfly
Zygoptera quadrimaculata

Habitat occupied
4

Disturbances solved
0 0 0

Conservation priority
7



Gameplay

1 Player 2 rolls the dice and obtain the action logo

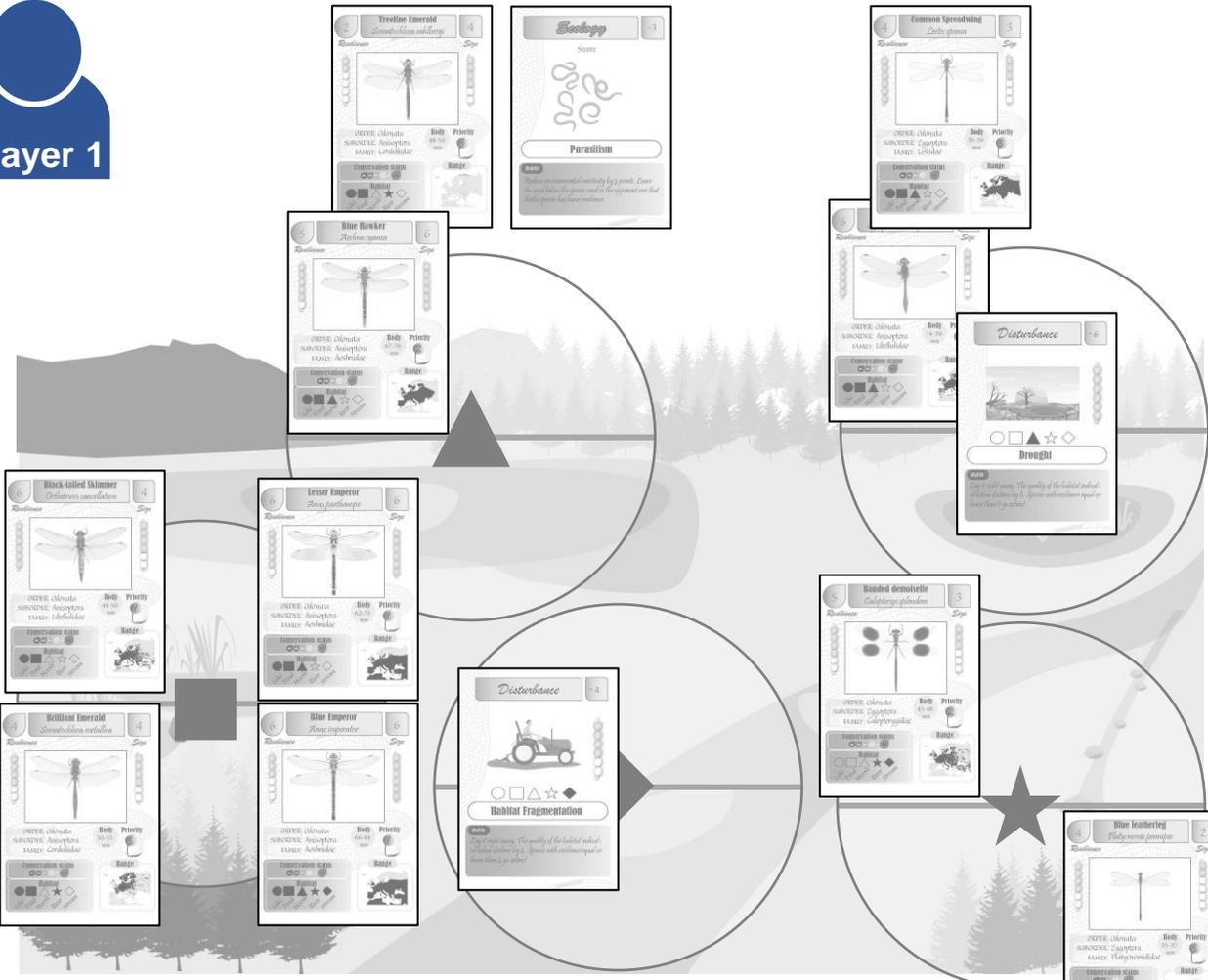
Habitat occupied
2

Disturbances solved
0 1 0

Conservation priority
7



Player 1



Habitat occupied: 4 (represented by square, triangle, circle, diamond, star)

Disturbances solved: 0 (+2), 0 (+4), 0 (+6)

Conservation priority: 7 (represented by dragonfly icon)

Dragonfly

Action

Disturbance

1

Gameplay

1 Player 2 draws an action card and receives a conservation card (IUCN)



Player 2



Habitat occupied: 2 (represented by square, triangle, circle, diamond, star)

Disturbances solved: 0 (+2), 1 (+4), 0 (+6)

Conservation priority: 7 (represented by dragonfly icon)

Player 1

Game board for Player 1. It features a central landscape with a pond and trees. Several dragonfly cards are placed on the board, each with a habitat icon and a priority level. A disturbance card titled "Disturbance" with a tractor icon and "Habitat Fragmentation" is placed on the board. A red arrow points from a green circle with the number "1" to a yellow "Conservation" card with the IUCN logo and "Habitat Protection" text.

Habitat occupied: 4 (represented by a square, triangle, circle, and star)

Disturbances solved: 0, 0, 0 (represented by three circles with +2, +4, +6)

Conservation priority: 7 (represented by a dragonfly icon)

A circular area containing two stacks of cards. The left stack is labeled "Action" and features icons of a dragonfly and gears. The right stack is labeled "Disturbance" and features a warning triangle icon.

Gameplay

- 1 Player 2 uses the Conservation card to solve the environmental disturbance (Habitat fragmentation) in the diamond habitat

Player 2

Game board for Player 2. It features a central landscape with a pond and trees. Several dragonfly cards are placed on the board, each with a habitat icon and a priority level. A yellow "Conservation" card with the IUCN logo and "Habitat Protection" text is placed on the board. A red arrow points from a green circle with the number "1" to this card.

Habitat occupied: 2 (represented by a square and a triangle)

Disturbances solved: 0, 2, 0 (represented by three circles with +2, +4, +6; the middle one is yellow)

Conservation priority: 7 (represented by a dragonfly icon)

Player 1

Stop the game here

Habitat occupied: 4

Disturbances solved: 0, 0, 0

Conservation priority: 7

Dragonfly

Action

Disturbance

Gameplay

1 As the game is long, we stop it here to understand how scoring is calculated at the end of the game

Player 2

Five-spined darter

Ecology

Process

Habitat occupied: 2

Disturbances solved: 0, 2, 0

Conservation priority: 7



Gameplay

- 1 At the end of the game, the three scores (habitat, disturbances solved, conservation priority) are used to calculate the final score.
- 2 Each occupied habitat counts as 10
- 3 The total number of points for environmental disturbances depends on the number of disturbances and the level of severity of the disturbance (2 for mild, 4 for strong, and 6 for severe).
- 4 The conservation priority score is the sum of the priority indices of all species occupying a habitat at the end of the game
- 5 In the current game, Player 1 won with 47 points

1

Habitat occupied **Disturbances solved** **Conservation priority**

■ ▲ ● ◆ ★ +2 +4 +6 🦋

2 4 3 0 0 0 4 7

5

Final score

Habitat Disturbance Priority

👤 $40 + 0 + 7 = 47$

👤 $30 + 8 + 7 = 45$

1

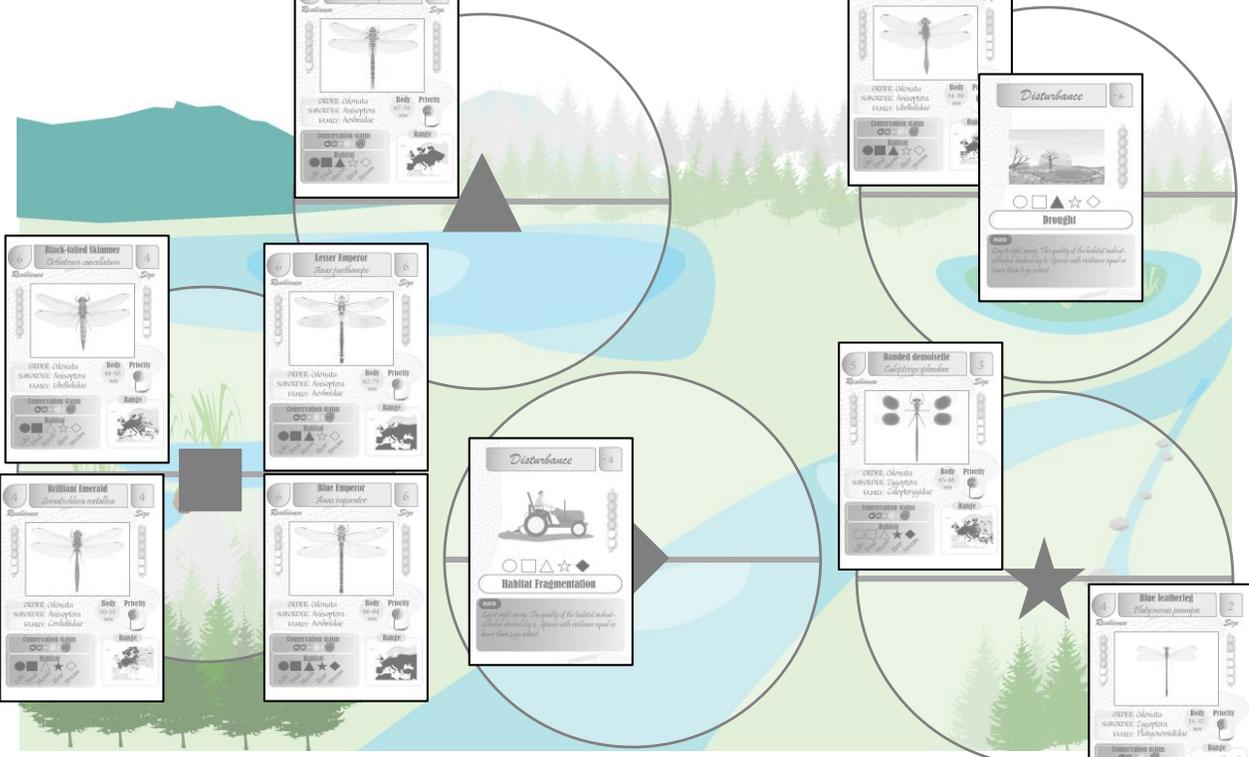
Habitat occupied **Disturbances solved** **Conservation priority**

■ ▲ ○ ◆ ★ +2 +4 +6 🦋

2 3 3 0 2 0 4 7



Player 1



Player 2