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| Monday, Nov 18 -- MARXAN COURSE (Lead by Norma Serra) **Software required:**   * **ArcGIS or QGIS** * **Excel** * **No need access to internet required unless needed for ArcGIS license** * **Marxan.exe** | |
| Start 9:00 – 9:15 (**15 min**) | **Introductions and Course overview and checking in software and data installations** |
| 9:15 – 9:45 (**30 min**) | **Talk 1** - Key concepts in systematic conservation planning |
| 9:45 – 10:15 (**30 min**) | **Talk 2 (part 1)** – Intro to Marxan. |
| 10:15 - 10:40 (20 min) | **Coffee Break** |
| 10:40 – 11:10 (**30 min**) | **Talk 3 - Hands-on Exercise 1:**  Simulating Marxan in Designing a Protected Area (excel exercise)   * **purpose: to gain familiarity with the basic way that the algorithm selects areas** |
| 11:10 – 11:30 (**20 min**) | **Talk 4** – Intro Simulated Annealing |
| 11:30 - 12:00 (**30 min**) | **Talk 5** – Marxan preparatory analysis. |
| 12:00 – 13:00 | **Lunch** |
| 13:00 – 13:30 (**30 min**) | **Talk 6:** Introducing Marxan input files  **Introduce exercise and its purpose**   * **purpose: to learn how to create Marxan input files and set up a Marxan database** * **to learn how to run Marxan as a stand-alone application** |
| 13:30 – 16:30  **(20 intro + 3 hours)** | **Talk 7 - Hands-on Exercise 2:**  Preparation of Marxan input files in ArcGIS or QGIS, and running Marxan for the first time! |
| End 16:45 | **Wrap-up** |

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| Tuesday, Nov 19 -- MARXAN COURSE (Lead by Norma Serra) **Software required:**   * **ArcGIS or QGIS** * **No need access to internet required unless needed for ArcGIS license** * **Marxan.exe** * **ZC** | |
| Start 9:00 – 9:15 **(20 min**) | **Recap day 1 and agenda day 2** |
| 9:15 – 9:45 (**30 min**) | **Talk 8** – Intro to Marxan output files   * **Purpose: to learn how to interpret, manage and visualize Marxan outputs** |
| 9:45 – 10:10 (**20 min**) | **Hands-on Exercise 3 – Scenario 1:**   * Running Marxan as a standalone application and visualization of results |
| 10:10 – 10:30 (**20 min break**) | **Coffee Break** |
| 10:30 – 11:30 (1 h) | ***Guest speaker*** *?? Marxan Connect?* |
| 11: 30 – 12:00 (30 min) | **Talk 9** – Introducing Zonae Cogito and parameter calibration  **Introduce exercise and its purpose**   * **purpose: to learn how to use ZC as a user interface for Marxan** * **to learn how to calibrate key parameters and run Marxan efficiently** |
| 12:00 – 13:00 (1 h) | **Lunch** |
| 13:00 – 15:30 (2.5 h) | **Hands-on Exercise 3 (cont.): Scenario 2 to 6**   * Running Marxan with Zonae Cogito * Calibrating Marxan parameters * Incorporating existing MPAs into Marxan * Exploring trade-offs |
| 15:30 – 16:30 (1 h) | **Talk 10: Summary Slides**  **Wrap-up** |
| Wednesday 20, Nov -- MARXAN with Zones COURSE (Lead by Norma Serra) **Software required:**   * **ArcGIS or QGIS** * **Excel** * **No need access to internet required unless needed for ArcGIS license** * **MarZone.exe** * **ZC** | |
| Start 9:00 – 9:15 (15 min) | **Introductions and Course overview** |
| 9:15 – 10:00 (45 min) | **Talk 1.** Introduction to MarZone |
| 10:00 – 10:20 (20 min) | **Coffee Break** |
| 10:20 – 10:50 (30 min) | **Talk 2.** Introduction to Exercise 1: Using MarZone to design an equitable network of MPAs  **Introduce exercise / scenarios and purpose**   * **purpose: to learn how to use MarZone to plan a protected area network that spreads impacts equitably across affected stakeholder groups** |
| 10:50 – 12:00 (1 h) | **Hands-on Exercise 1:**   * **Scenario 1: Running MarZone and displaying results in GIS** * **Scenario 2: Introducing zoneboundcost** * **Scenario 3: new zoning framework** |
| 12:00 – 13:00 | **Lunch** |
| 13:00 – 13:30 (30 min) | **Talk 3.** Introduction to Exercise 2: Using MarZone to create a multi-zone marine plan |
| 14:30 – 16:30 (2 h) | **Hands-on Exercise 2:**   * Running MarZone with Zonae Cogito * Calibrating MarZone parameters * Incorporating existing MPAs in MarZone * Zone contributions vs. Zone targets * Exploring trade-offs * Building your own zoning framework |
| End 16:45 | **Wrap-up** |

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| Thursday, Nov 21 – Prioritizr (Lead by Richard Schuster)**Software required:**   * **R and RStudio** * **Internet access for Shiny examples** | |
| Start 9:00 – 9:15 (15 min) | **Introductions and Course overview** |
| 9:15 – 10:00 (45 min) | **Talk 1.** Introduction to Prioritizr |
| 10:00 – 10:20 (20 min) | **Coffee Break** |
| 10:20 - 11:20 (1h) | **Hands-on Exercise 1:**   * Setup R and RStduio * Recreate the first Marxan example in prioritzr (using input.dat and .dat files) * Processing the first Marxan example input data in R * Solving the Marxan problem just created in R |
| 11:20 - 12:00 (40 min) | **Talk 2 + exercise.** Introduce more advanced capabilities of prioritzr (constraints, penalties, irreplaceable, ...)   * Expand Marxan example with a few advanced features |
| 12:00 – 13:00 | **Lunch** |
| 13:00 - 13:30 (30 min) | **Talk 3.** Introduction to Exercise 2: Terrestrial case study using a Shiny app |
| 13:30 - 15:00 (1.5h) | **Hands-on Exercise 2:**   * Carbon Synergy in the Conservation of Forested Land * Using carbon offset in conservation planning to reduce purchase costs |
| 15:00 - 15:20 (20 min) | **Talk 4.** Introduction to Exercise 3: Strategic investment for co-benefits |
| 15:20 - 16:00 (40 min) | **Hands-on Exercise 3:**   * Realizing co-benefits of conservation planning through complementarity |
| 16:00 - 16:45 (45 min) | **Talk 5 + discussion.** Current projects and future of prioritzr |
| End 16:45 | **Wrap-up** |