Setting η_1 to a smaller value will make the trust region algorithm more conservative. This means that it will be less likely to take large steps, and it may take more iterations to reach the optimal solution. However, it may also be less likely to get stuck in local minima.

Setting η_3 to a value greater than η_1 will make the trust region algorithm more aggressive. This means that it will be more likely to take large steps, and it may reach the optimal solution more quickly. However, it may also be more likely to get stuck in local minima.