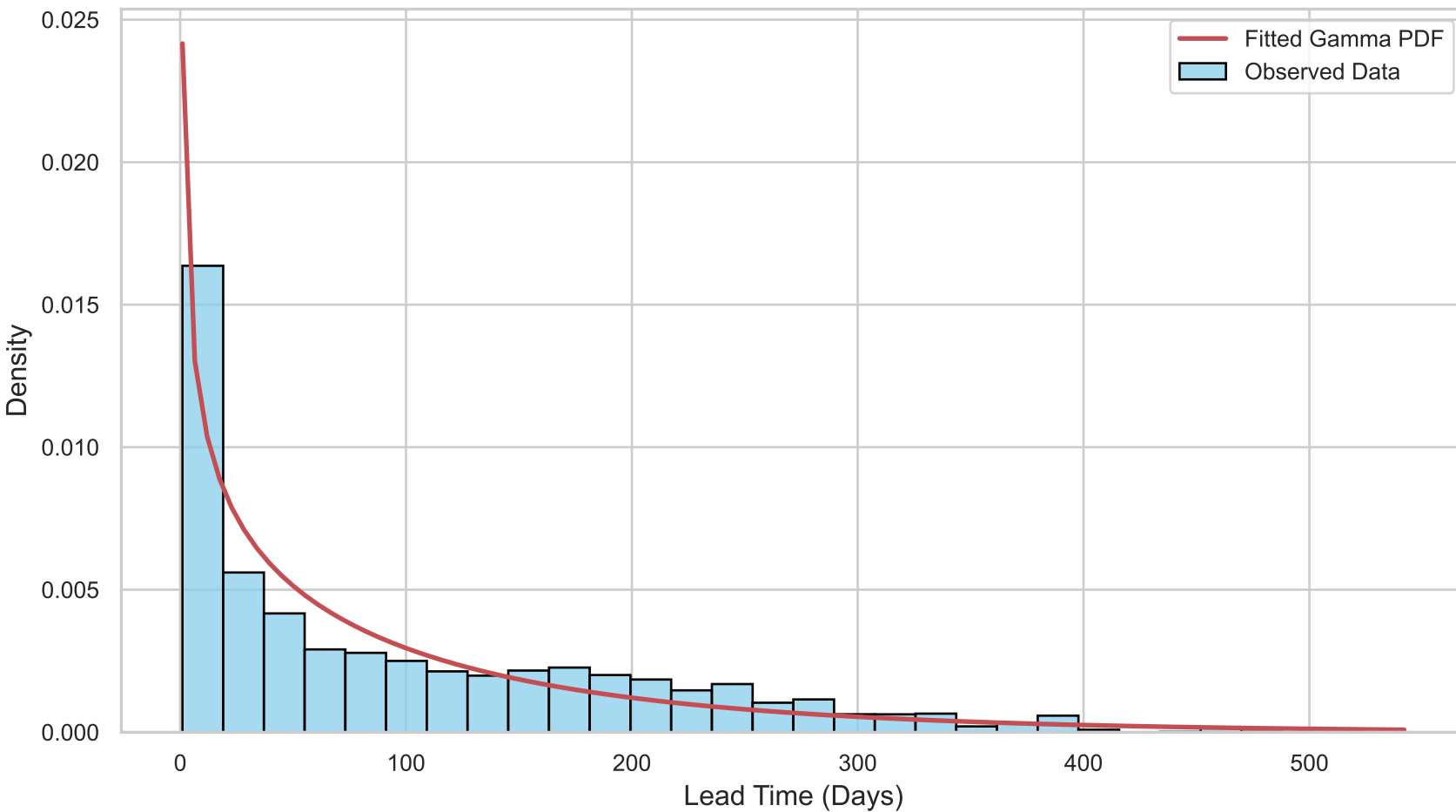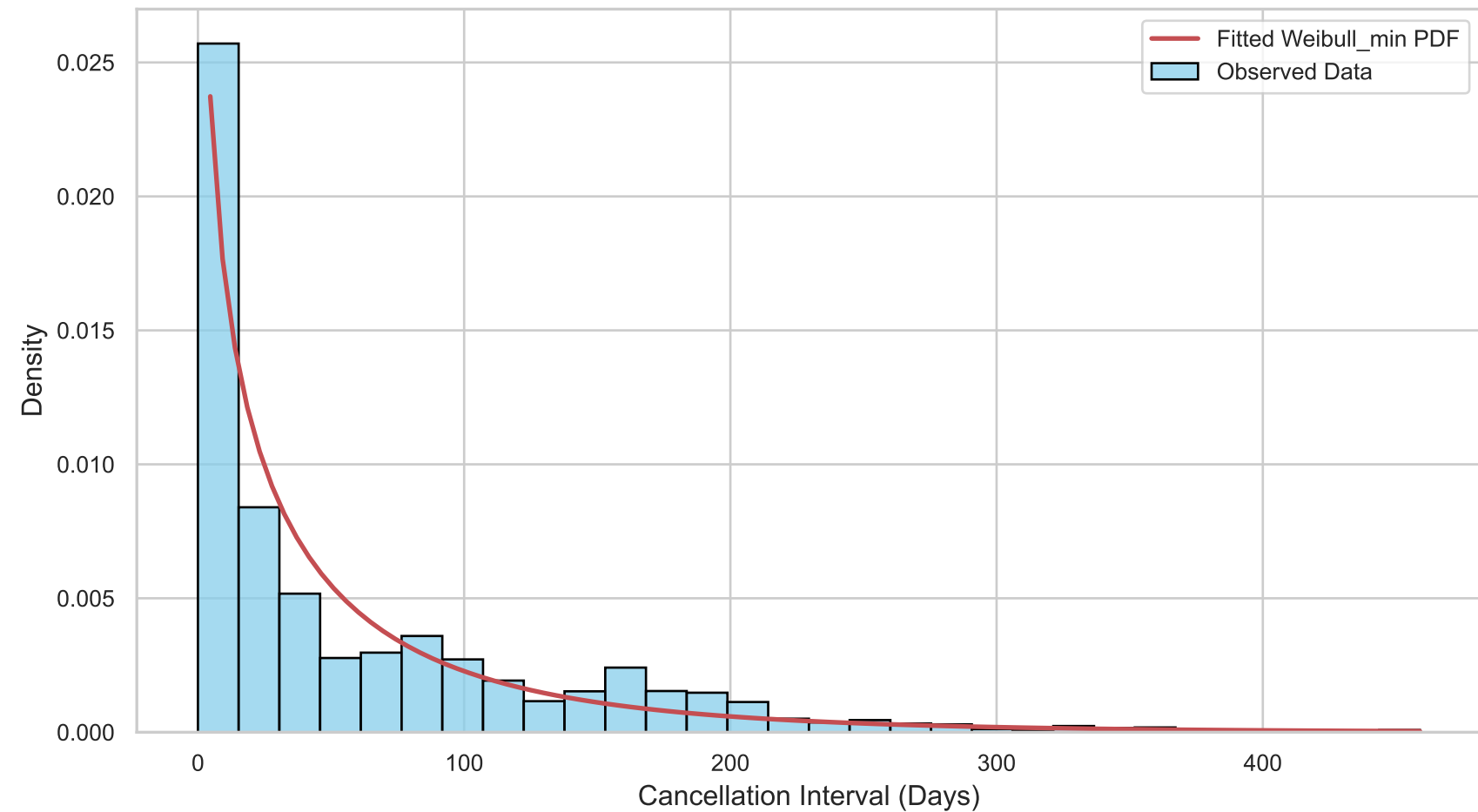Comparison of Simulated Data with Fitted Distributions