Existence of unique positive solution

In order for the model to make sense , 有

3.1

For any given initial value $I(0) = I_0 \in (0, N)$, the SDE (**??**) has a unique global positive solution $I(t) \in (0, N)$ for all $t \geq 0$ with probability one, namely, 有

$$P\{I(t) \in (0, N), \forall t \geq 0\} = 1.$$