$$
\begin{aligned}
P\left(\boldsymbol{\beta}, \mathbf{z}, p | \mathbf{y}, \mathbf{x}, \mathbf{n}\right) \quad \propto & \\
& \prod_{i=1}^{I} \left[\text{binomial}\left(y_i | p \cdot z_i, n_i\right) \times \right. \\
& \left. \text{Bernouli}\left[z_i | \text{invlogit}\left(\beta_0 + \beta_1 elev_i + \beta_2 {elev_i}^2 + \beta_3 forest_i\right)\right]\right] \times \\
& \text{normal}\left(\beta_0 | 0, .00001\right) \text{normal}\left(\beta_1 | 0, .00001\right) \times \\
& \text{normal}\left(\beta_2 | 0, .00001\right) \text{beta}\left(p | 1, 1\right)
\end{aligned}
$$