seaborn.pairplot

`seaborn.pairplot(data, *, hue=None, hue_order=None, palette=None, vars=None, x_vars=None, y_vars=None, kind='scatter', diag_kind='auto', markers=None, height=2.5, aspect=1, corner=False, dropna=False, plot_kws=None, diag_kws=None, grid_kws=None, size=None)`

Plot pairwise relationships in a dataset.

By default, this function will create a grid of Axes such that each numeric variable in `data` will by shared across the y-axes across a single row and the x-axes across a single column. The diagonal plots are treated differently: a univariate distribution plot is drawn to show the marginal distribution of the data in each column.

It is also possible to show a subset of variables or plot different variables on the rows and columns.

This is a high-level interface for `PairGrid` that is intended to make it easy to draw a few common styles. You should use `PairGrid` directly if you need more flexibility.

Parameters:

data : *`pandas.DataFrame`*

Tidy (long-form) dataframe where each column is a variable and each row is an observation.

hue : *name of variable in `data`*

Variable in `data` to map plot aspects to different colors.

hue_order : *list of strings*

Order for the levels of the hue variable in the palette

palette : *dict or seaborn color palette*

Set of colors for mapping the `hue` variable. If a dict, keys should be values in the `hue` variable.

vars : *list of variable names*

Variables within `data` to use, otherwise use every column with a numeric datatype.

{x, y}_vars : *lists of variable names*

Variables within `data` to use separately for the rows and columns of the figure; i.e. to make a non-square plot.

kind : *{'scatter', 'kde', 'hist', 'reg'}*

Kind of plot to make.

diag_kind : *{'auto', 'hist', 'kde', None}*

Kind of plot for the diagonal subplots. If 'auto', choose based on whether or not `hue` is used.

markers : *single matplotlib marker code or list*

Either the marker to use for all scatterplot points or a list of markers with a length the same as the number of levels in the hue variable so that differently colored points will also have different scatterplot markers.

height : *scalar*

Height (in inches) of each facet.

aspect : *scalar*

Aspect * height gives the width (in inches) of each facet.

corner : *bool*

If True, don't add axes to the upper (off-diagonal) triangle of the grid, making this a "corner" plot.

dropna : *boolean*

Drop missing values from the data before plotting.

{plot, diag, grid}_kws : *dicts*

Dictionaries of keyword arguments. `plot_kws` are passed to the bivariate plotting function, `diag_kws` are passed to the univariate plotting function, and `grid_kws` are passed to the `PairGrid` constructor.

Returns:

grid : *`PairGrid`*

Returns the underlying `PairGrid` instance for further tweaking.

See also

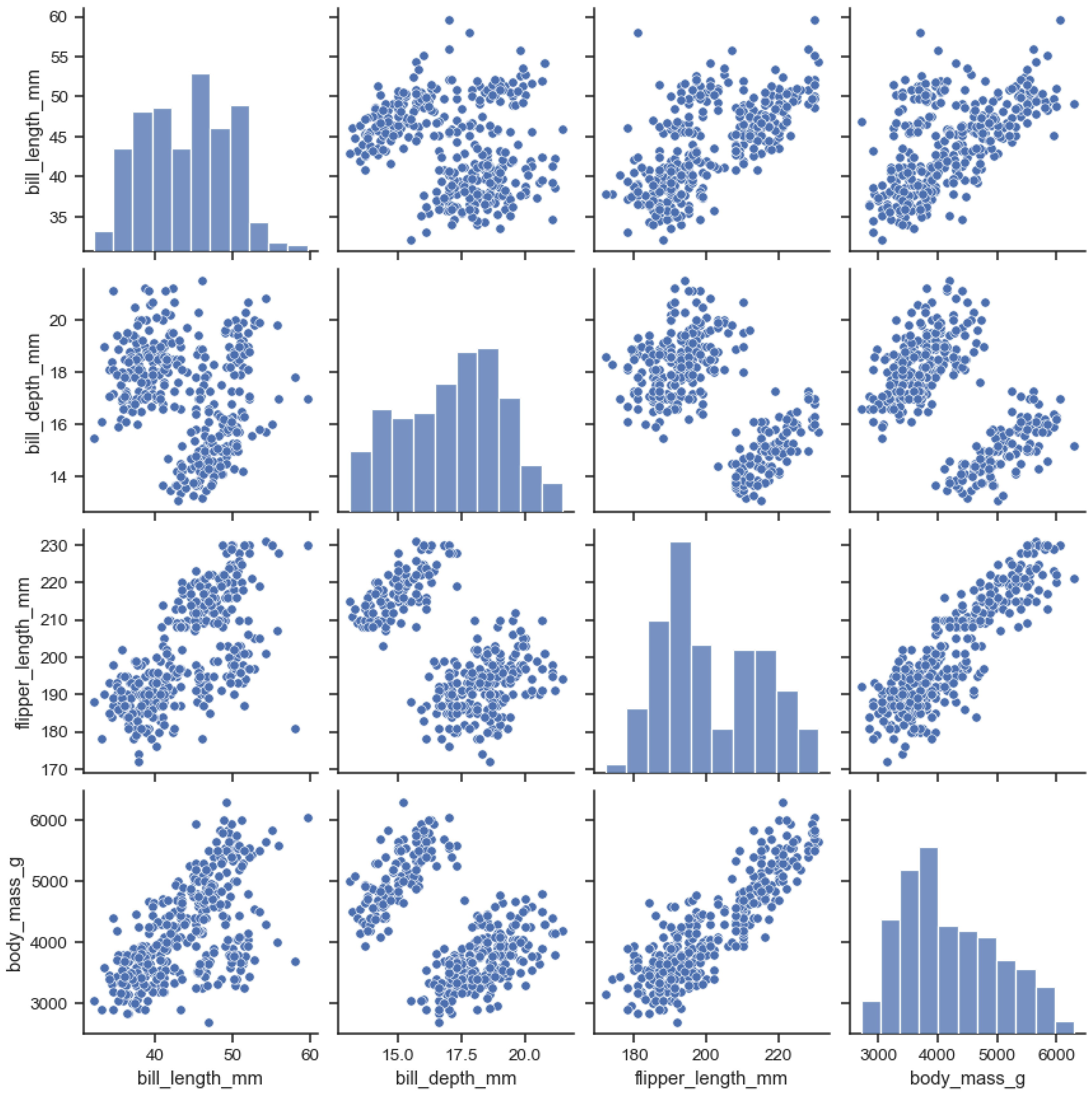
`PairGrid`
: Subplot grid for more flexible plotting of pairwise relationships.

`JointGrid`
: Grid for plotting joint and marginal distributions of two variables.

Examples

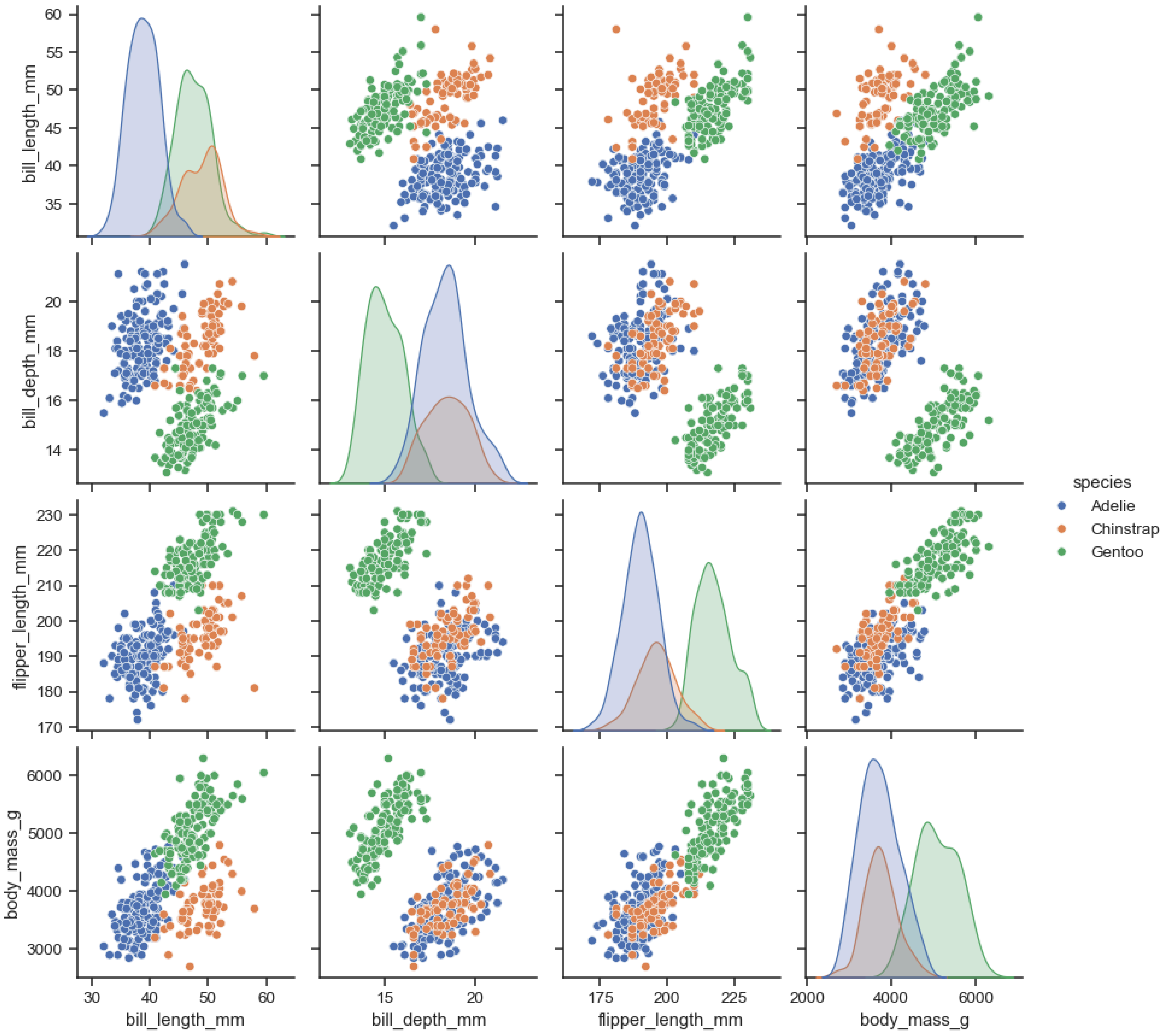
The simplest invocation uses `scatterplot()` for each pairing of the variables and `histplot()` for the marginal plots along the diagonal:

```
penguins = sns.load_dataset("penguins")
sns.pairplot(penguins)
```



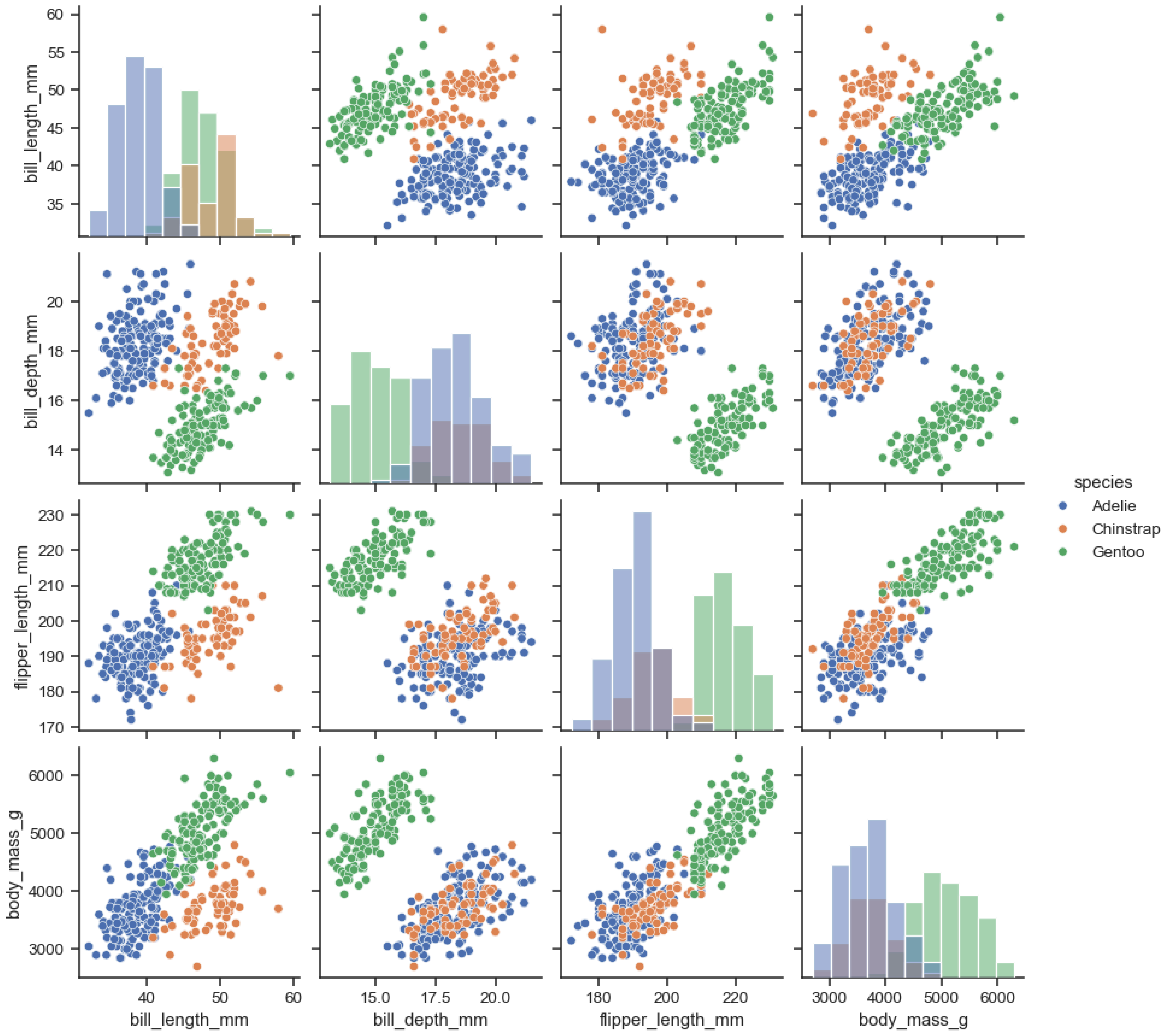
Assigning a `hue` variable adds a semantic mapping and changes the default marginal plot to a layered kernel density estimate (KDE):

```
sns.pairplot(penguins, hue="species")
```



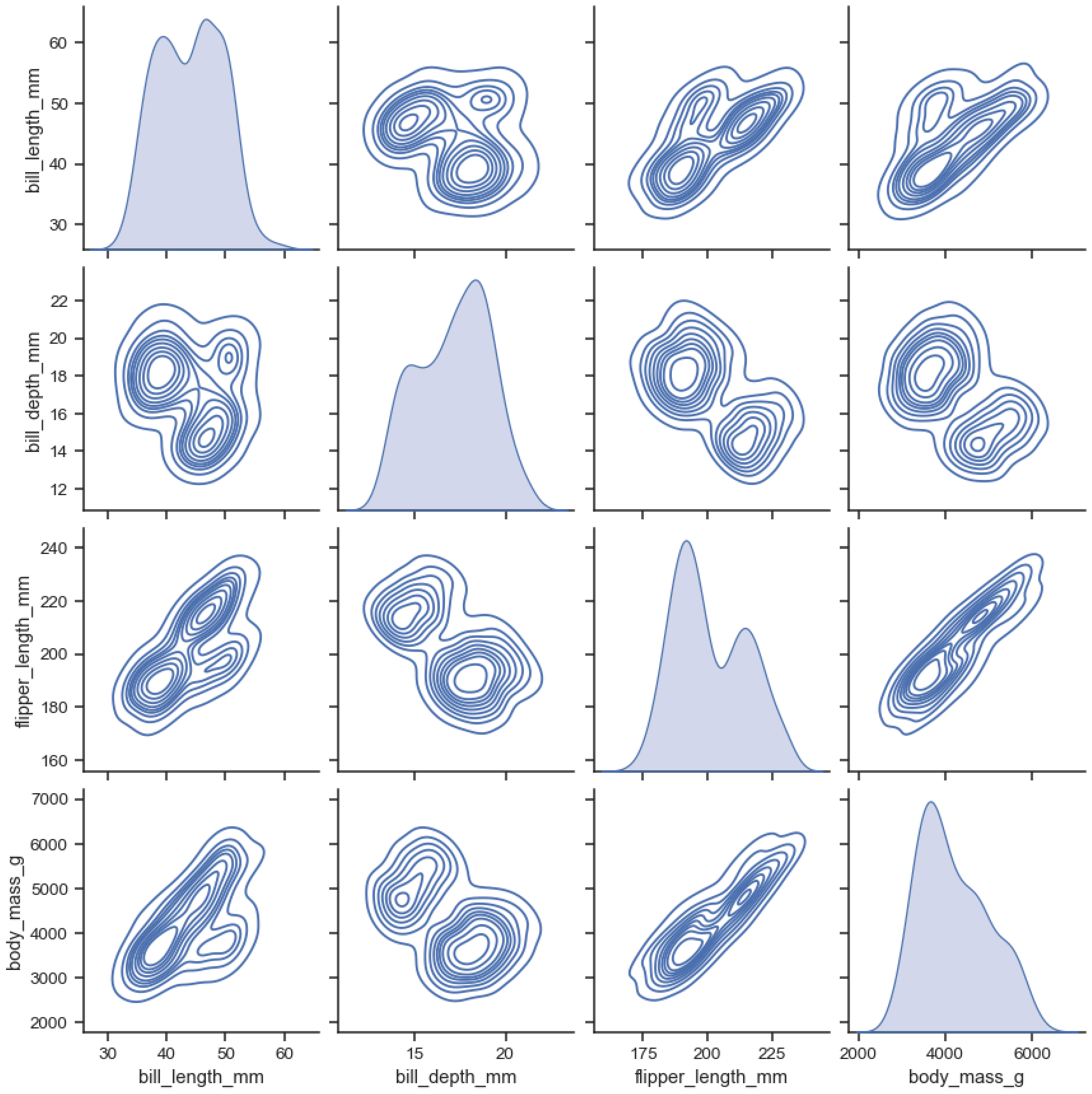
It’s possible to force marginal histograms:

```
sns.pairplot(penguins, hue="species", diag_kind="hist")
```



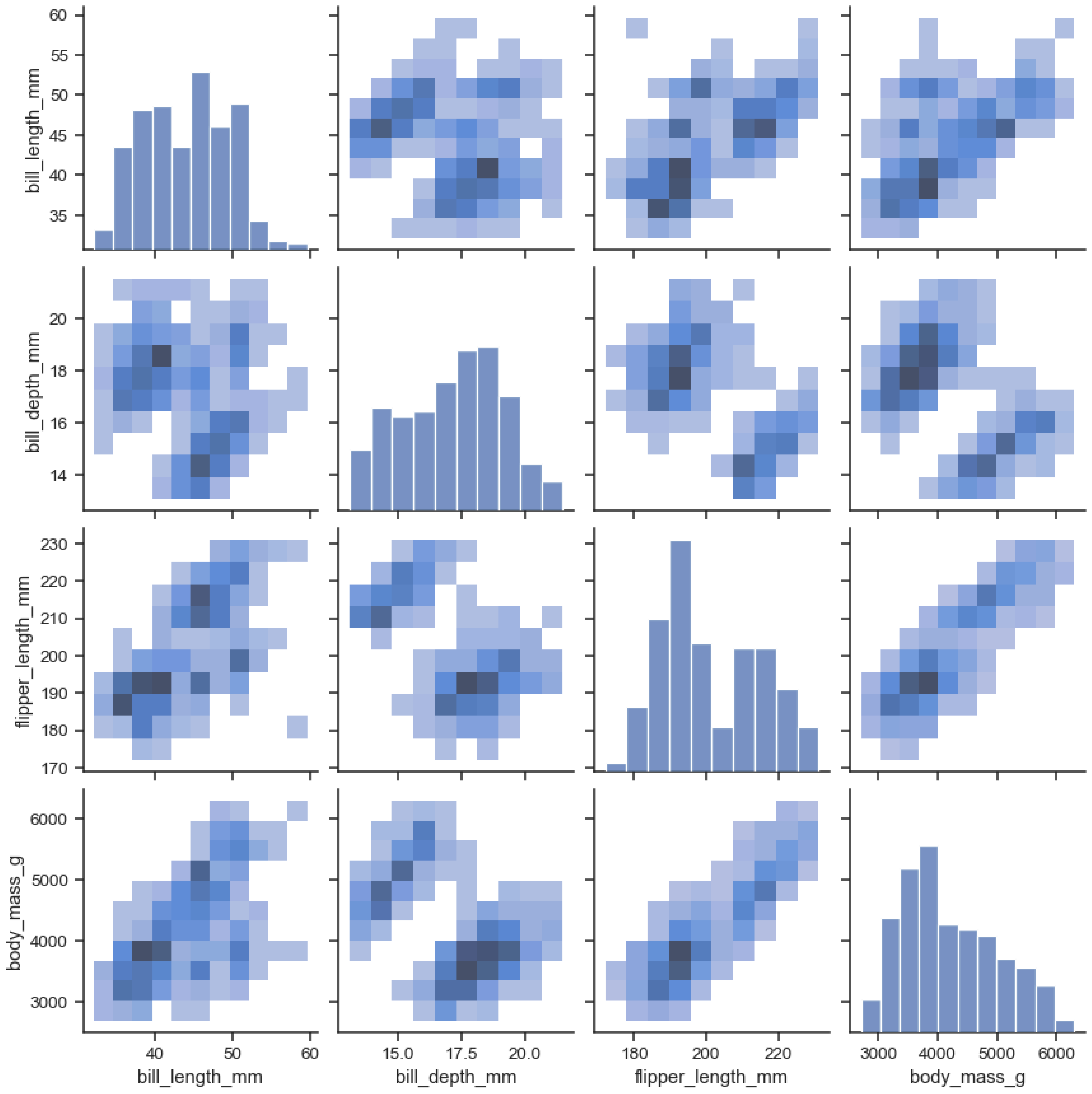
The `kind` parameter determines both the diagonal and off-diagonal plotting style. Several options are available, including using `kdeplot()` to draw KDEs:

```
sns.pairplot(penguins, kind="kde")
```



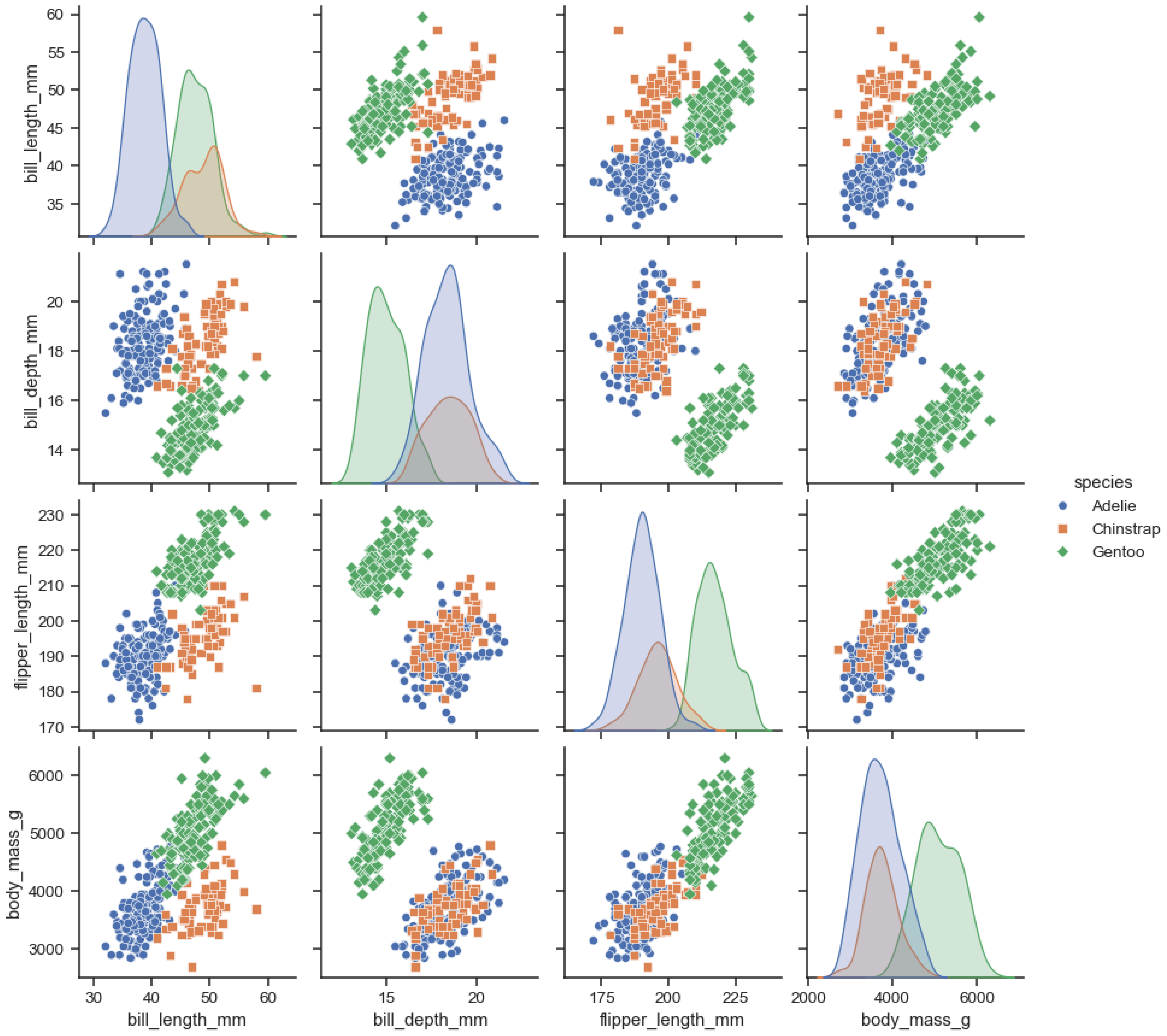
Or `histplot()` to draw both bivariate and univariate histograms:

```
sns.pairplot(penguins, kind="hist")
```



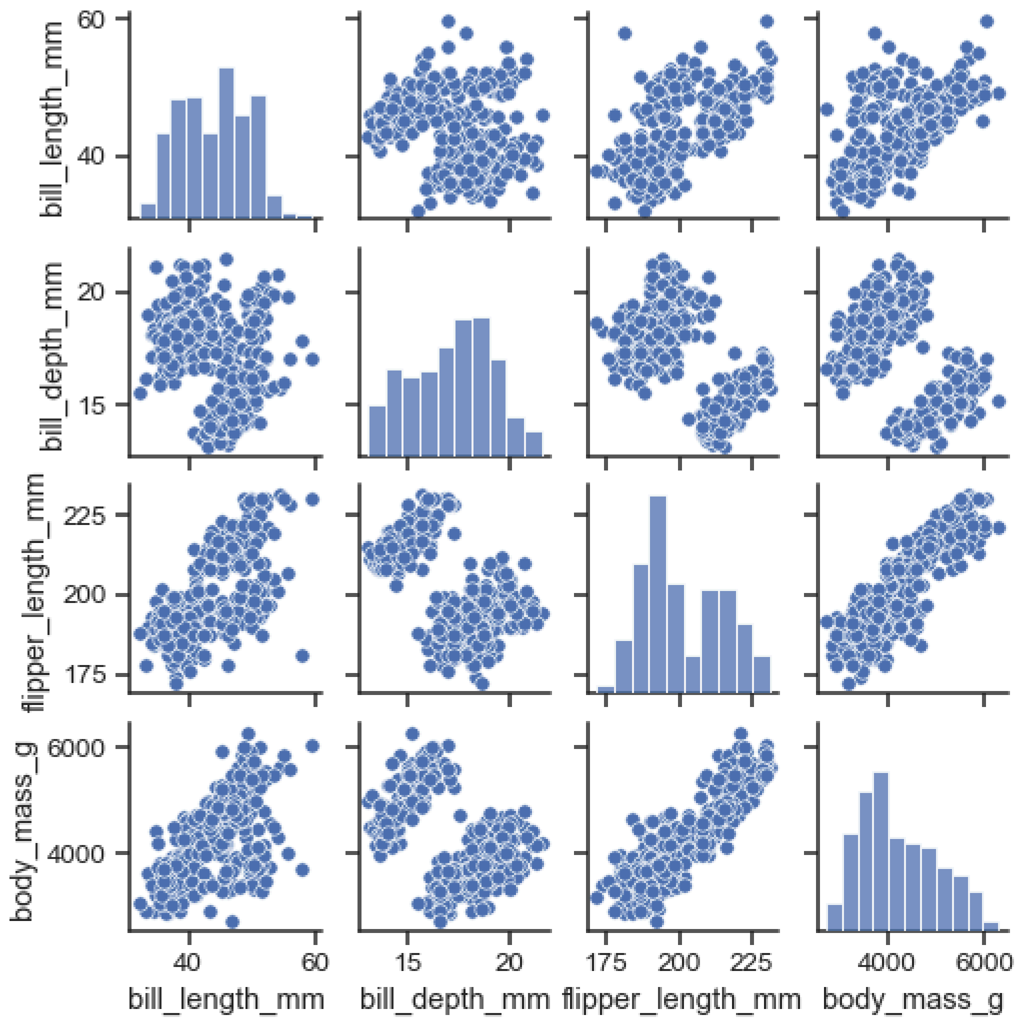
The `markers` parameter applies a style mapping on the off-diagonal axes. Currently, it will be redundant with the `hue` variable:

```
sns.pairplot(penguins, hue="species", markers=["o", "s", "D"])
```



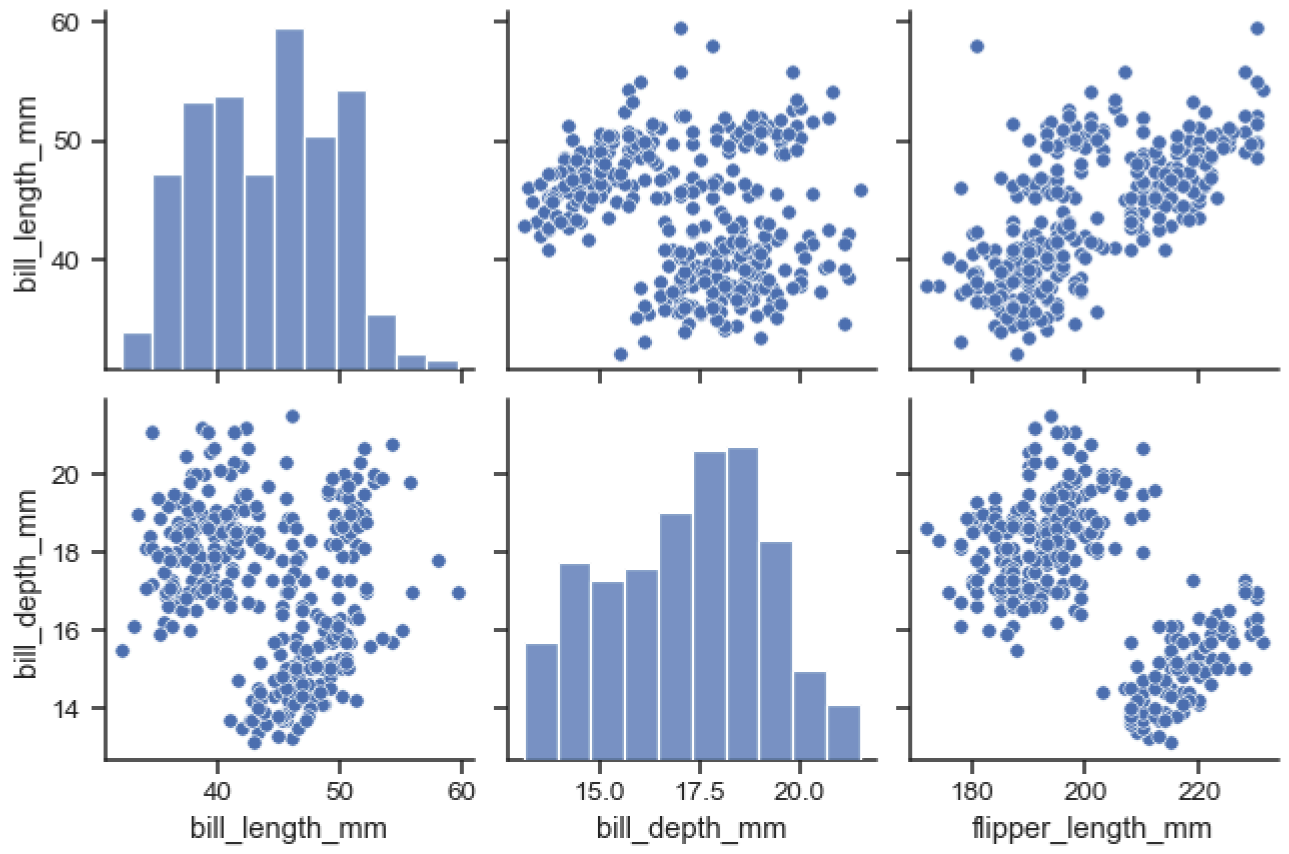
As with other figure-level functions, the size of the figure is controlled by setting the `height` of each individual subplot:

```
sns.pairplot(penguins, height=1.5)
```



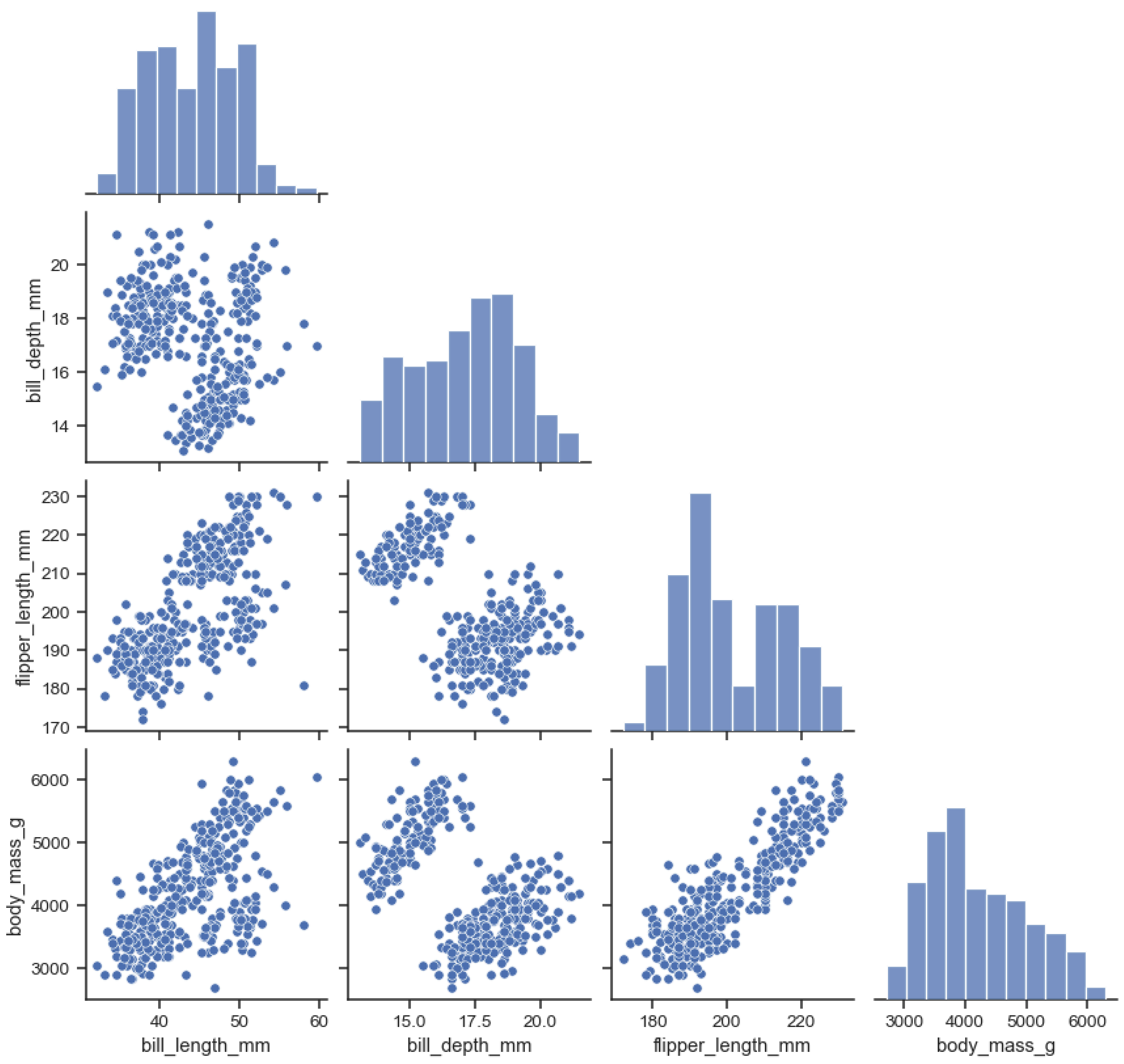
Use `vars` or `x_vars` and `y_vars` to select the variables to plot:

```
sns.pairplot(
    penguins,
    x_vars=["bill_length_mm", "bill_depth_mm", "flipper_length_mm"],
    y_vars=["bill_length_mm", "bill_depth_mm"],
)
```



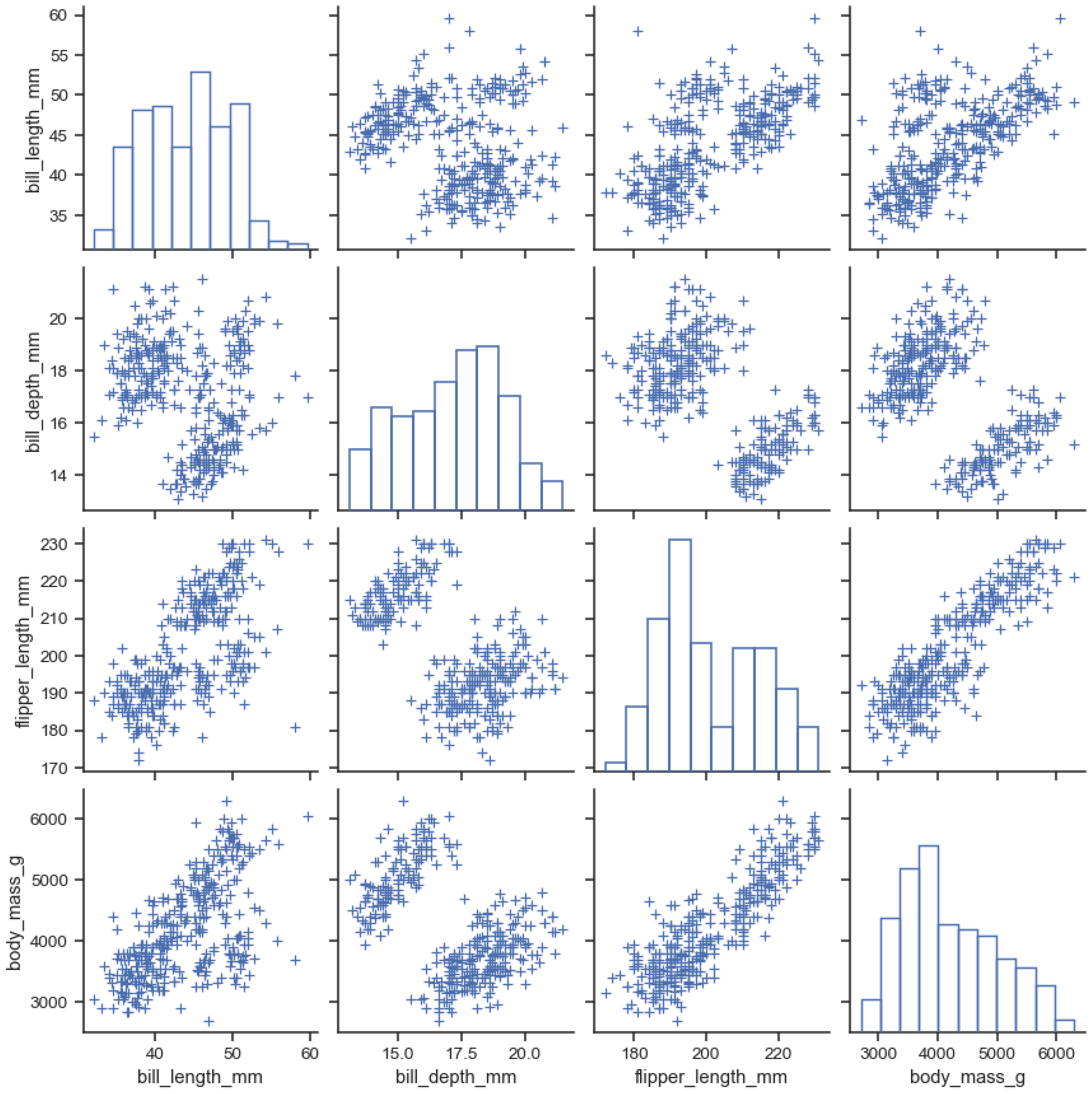
Set `corner=True` to plot only the lower triangle:

```
sns.pairplot(penguins, corner=True)
```



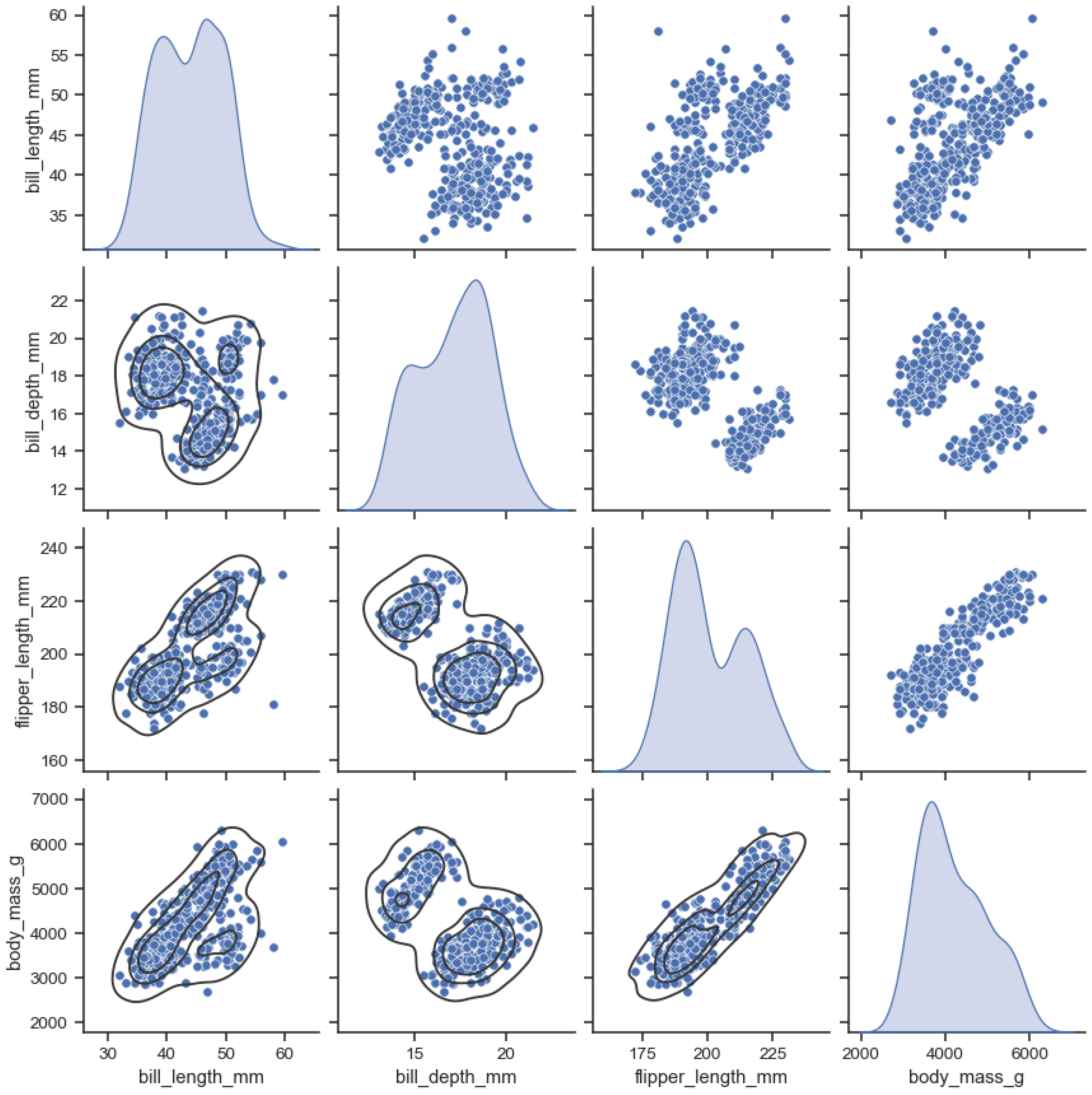
The `plot_kws` and `diag_kws` parameters accept dicts of keyword arguments to customize the off-diagonal and diagonal plots, respectively:

```
sns.pairplot(
    penguins,
    plot_kws=dict(marker="+", linewidth=1),
    diag_kws=dict(fill=False),
)
```



The return object is the underlying `PairGrid`, which can be used to further customize the plot:

```
g = sns.pairplot(penguins, diag_kind="kde")
g.map_lower(sns.kdeplot, levels=4, color=".2")
```


bill_length_mm
bill_depth_mm
flipper_length_mm
body_mass_g
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