

In [14]:

```
import pandas as pd
```

In [15]:

```
flowers=pd.read_csv(r'C:\Users\Dell\Downloads\10th,11th\10th,11th\IRIS DATASET _ ADVANCE VIS
```

In [16]:

```
flowers
```

Out[16]:

	<b>Id</b>	<b>SepalLengthCm</b>	<b>SepalWidthCm</b>	<b>PetalLengthCm</b>	<b>PetalWidthCm</b>	<b>Species</b>
<b>0</b>	1	5.1	3.5	1.4	0.2	Iris-setosa
<b>1</b>	2	4.9	3.0	1.4	0.2	Iris-setosa
<b>2</b>	3	4.7	3.2	1.3	0.2	Iris-setosa
<b>3</b>	4	4.6	3.1	1.5	0.2	Iris-setosa
<b>4</b>	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
<b>145</b>	146	6.7	3.0	5.2	2.3	Iris-virginica
<b>146</b>	147	6.3	2.5	5.0	1.9	Iris-virginica
<b>147</b>	148	6.5	3.0	5.2	2.0	Iris-virginica
<b>148</b>	149	6.2	3.4	5.4	2.3	Iris-virginica
<b>149</b>	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [17]:

```
flowers.shape
```

Out[17]:

(150, 6)

In [18]:

```
flowers.columns
```

Out[18]:

```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',  
      'Species'],  
      dtype='object')
```

In [19]:

```
flowers.columns=['Id','Sepallength','Seplawidth','Petallength','Petalwidth','species']
```

In [20]:

```
flowers.columns
```

Out[20]:

```
Index(['Id', 'Sepallength', 'Seplawidth', 'Petallength', 'Petalwidth',
      'species'],
      dtype='object')
```

In [21]:

```
flowers
```

Out[21]:

	Id	Sepallength	Seplawidth	Petallength	Petalwidth	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [22]:

```
flowers.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Id              150 non-null    int64
1   Sepallength     150 non-null    float64
2   Seplawidth      150 non-null    float64
3   Petallength     150 non-null    float64
4   Petalwidth      150 non-null    float64
5   species         150 non-null    object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

In [23]:

```
flowers.species=flowers.species.astype('category')
```

In [24]:

```
flowers.info()
```

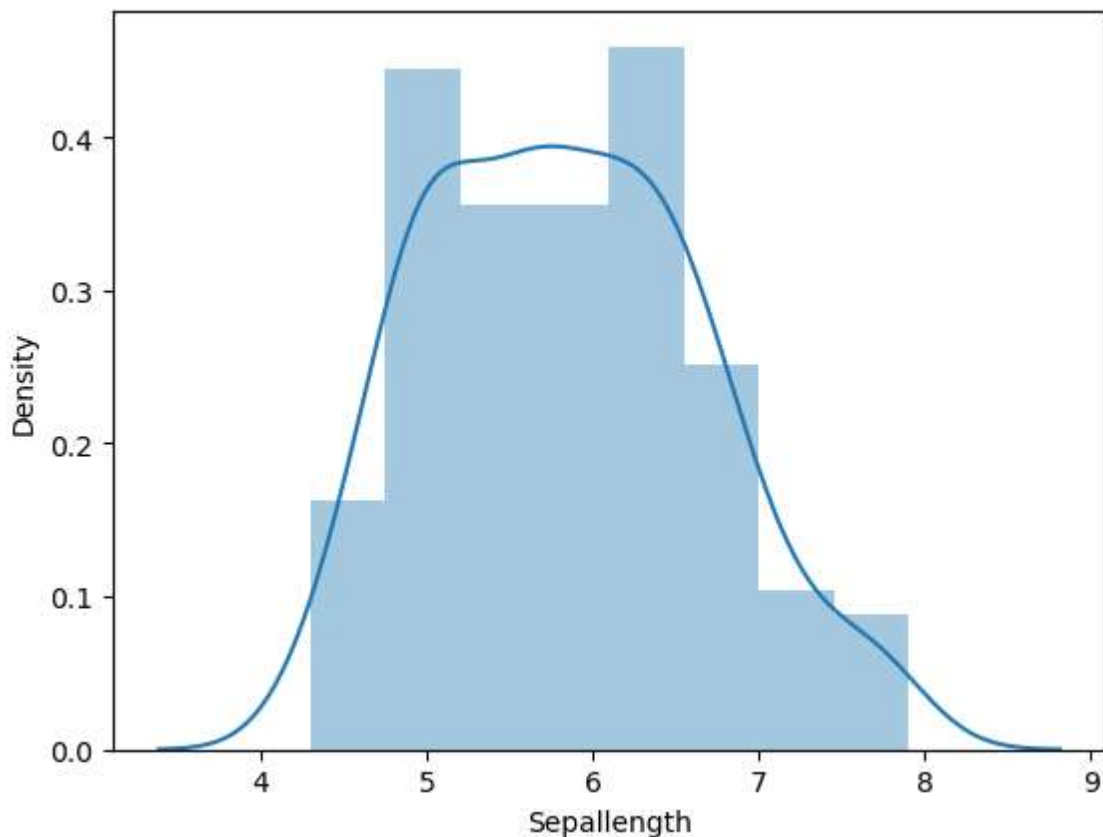
```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 150 entries, 0 to 149  
Data columns (total 6 columns):  
#   Column          Non-Null Count  Dtype  
---  ---  
0   Id              150 non-null   int64  
1   Sepallength     150 non-null   float64  
2   Seplawidth      150 non-null   float64  
3   Petallength     150 non-null   float64  
4   Petalwidth      150 non-null   float64  
5   species         150 non-null   category  
dtypes: category(1), float64(4), int64(1)  
memory usage: 6.3 KB
```

In [25]:

```
import matplotlib.pyplot as plt  
import seaborn as sns  
import warnings  
warnings.filterwarnings('ignore')
```

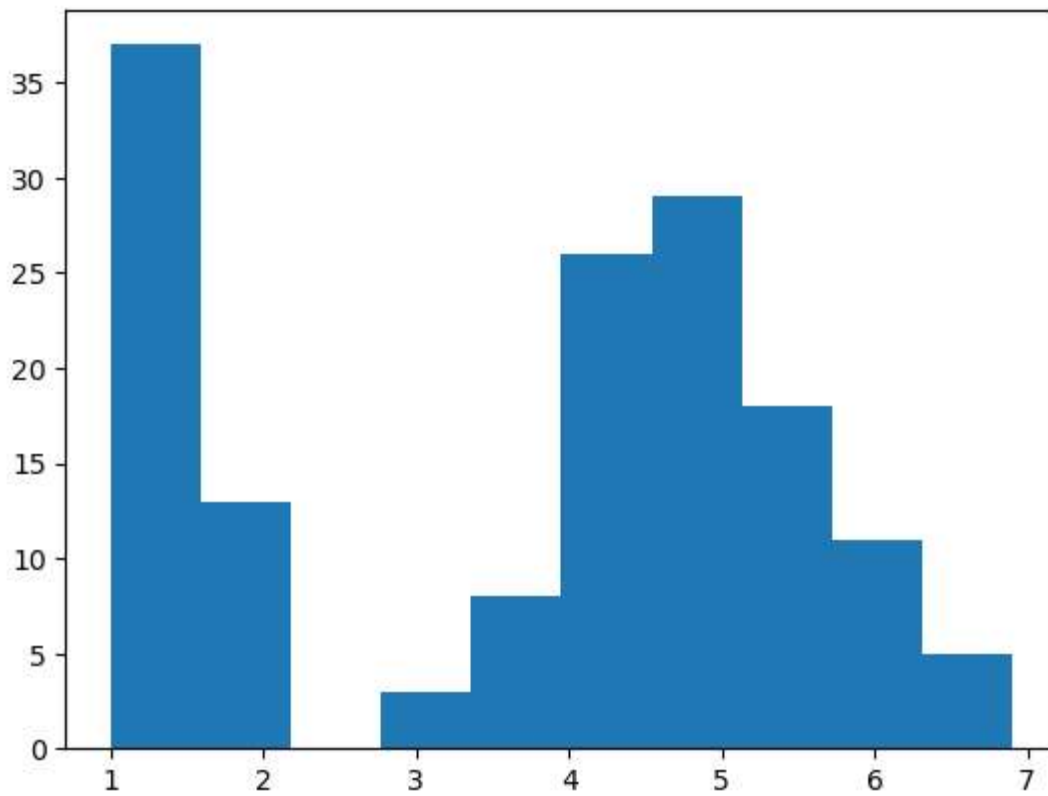
In [27]:

```
vis1=sns.distplot(flowers['Sepallength'])
```



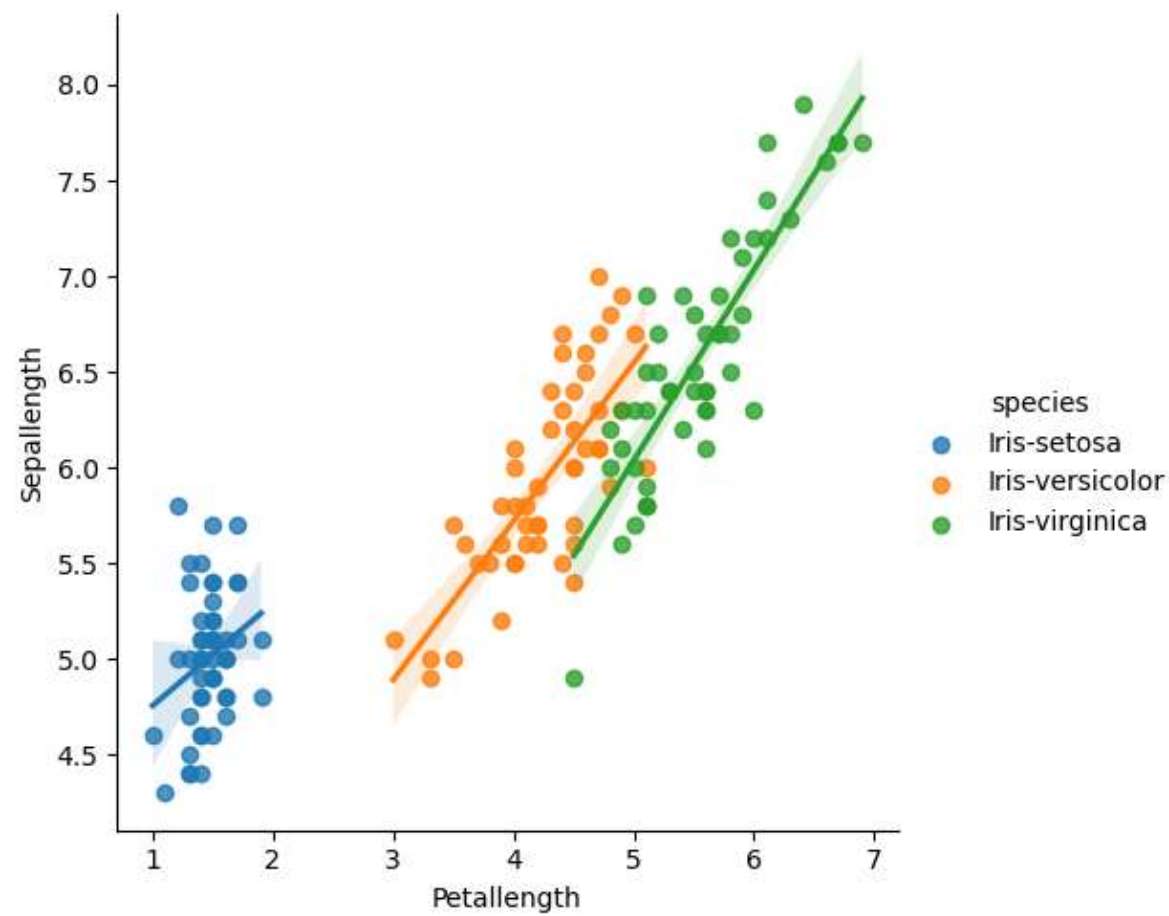
In [28]:

```
vis2=plt.hist(flowers['Petallength'])
```



In [29]:

```
vis3=sns.lmplot(data=flowers,x='Petallength',y='Sepallength',hue='species')
```



In [30]:

```
flowers
```

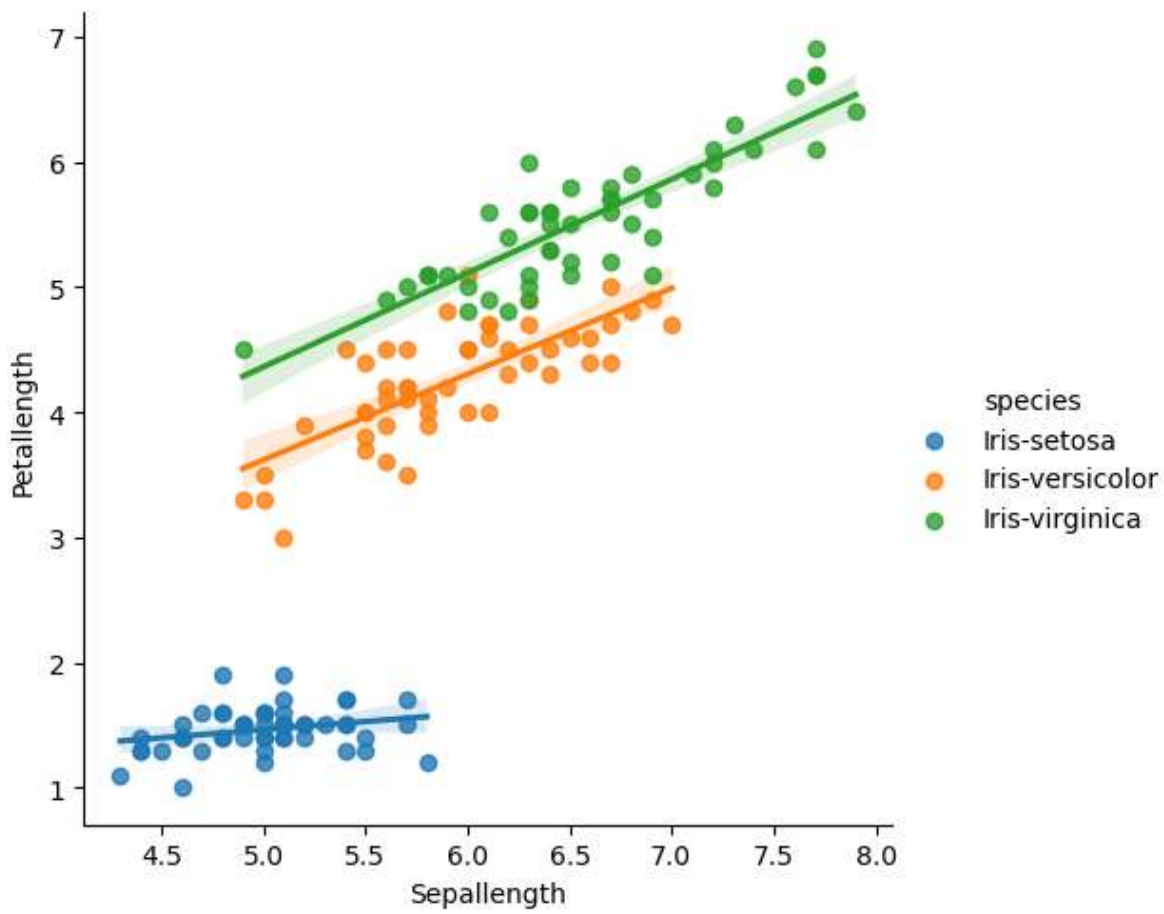
Out[30]:

	Id	Sepallength	Seplawidth	Petallength	Petalwidth	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

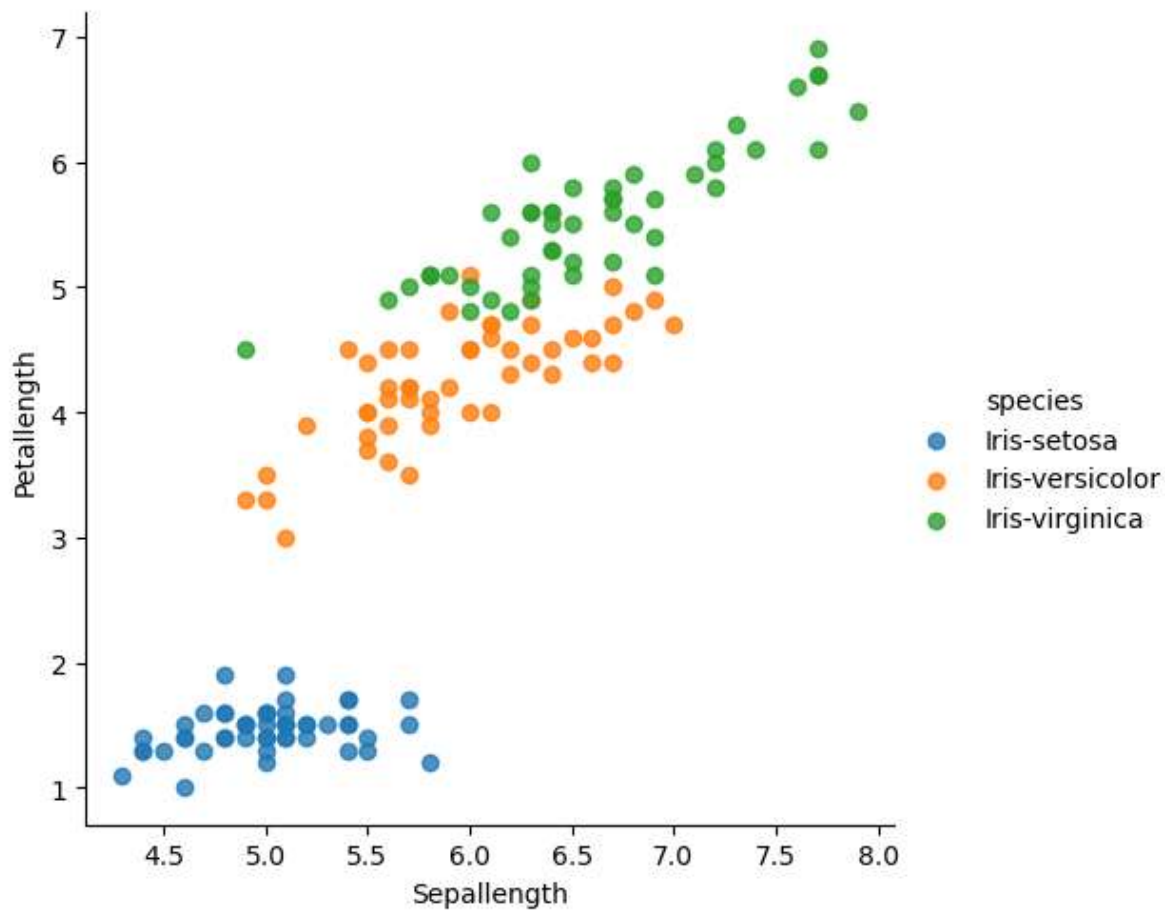
In [31]:

```
vis1=sns.lmplot(data=flowers,x='Sepallength',y='Petallength',fit_reg=True,hue='species')
```



In [32]:

```
vis1=sns.lmplot(data=flowers,x='Sepallength',y='Petallength',fit_reg=False,hue='species')
```

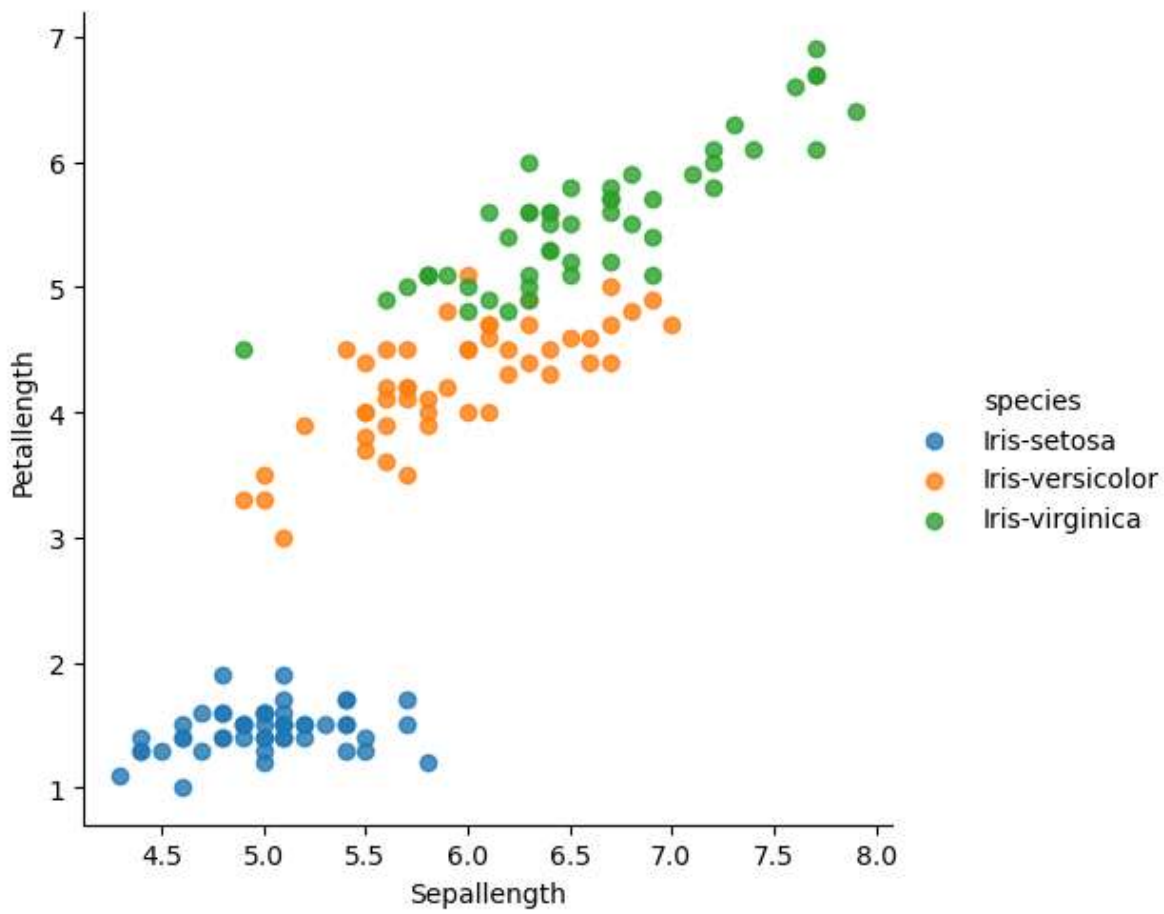


In [ ]:

```
plt.rcParams['figure.figsize']=10,6
```

In [33]:

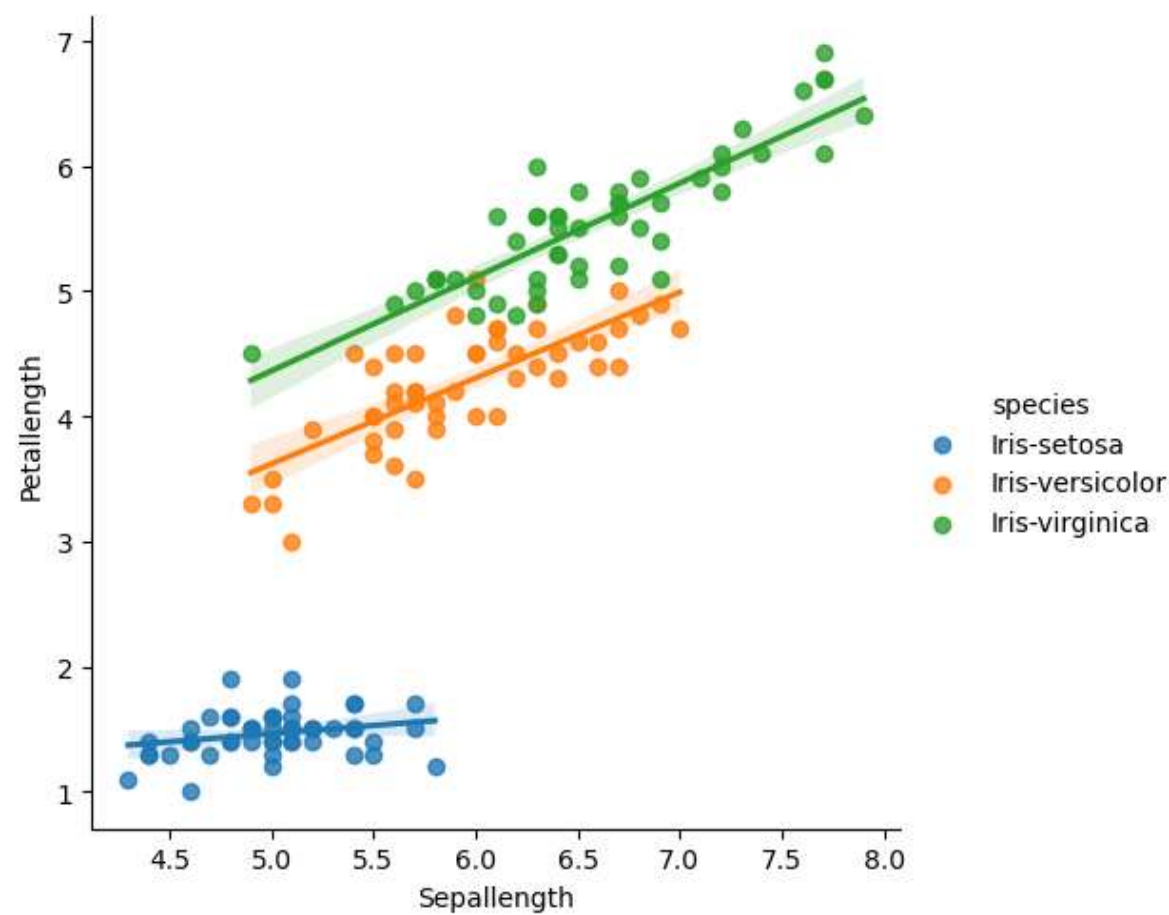
```
vis1=sns.lmplot(data=flowers,x='Sepallength',y='Petallength',fit_reg=False,hue='species')
```





In [34]:

```
vis1=sns.lmplot(data=flowers,x='Sepallength',y='Petallength',fit_reg=True,hue='species')
```



In [35]:

```
flowers
```

Out[35]:

	Id	Sepallength	Seplawidth	Petallength	Petalwidth	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

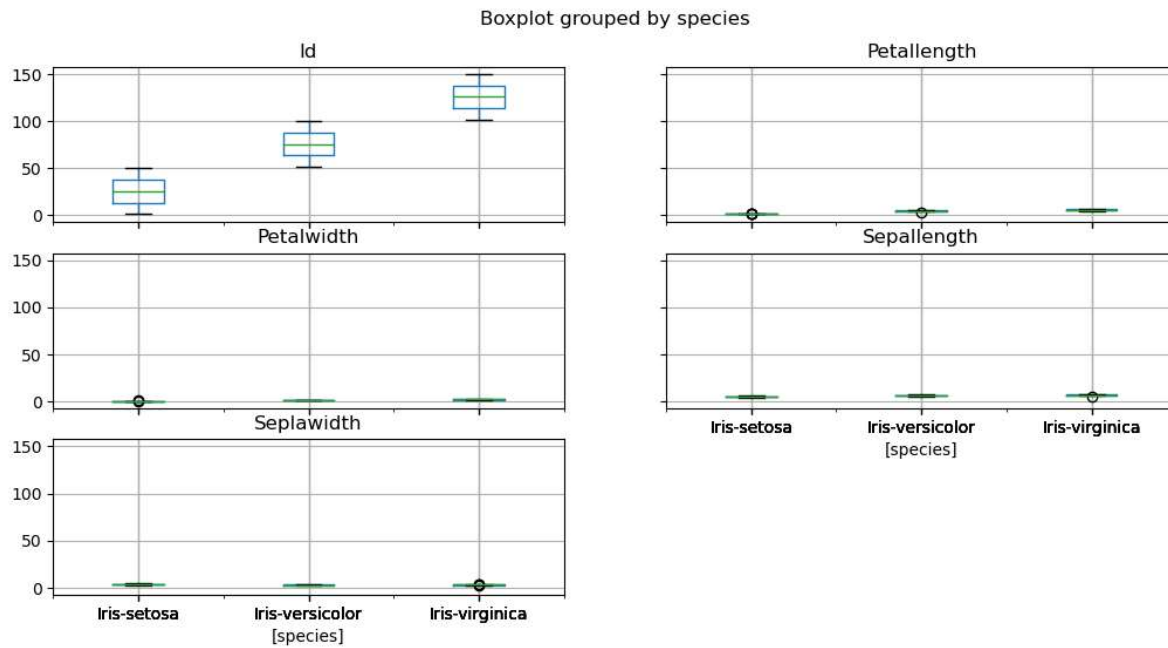
150 rows × 6 columns

In [42]:

```
flowers.boxplot(by="species", figsize=(12, 6))
```

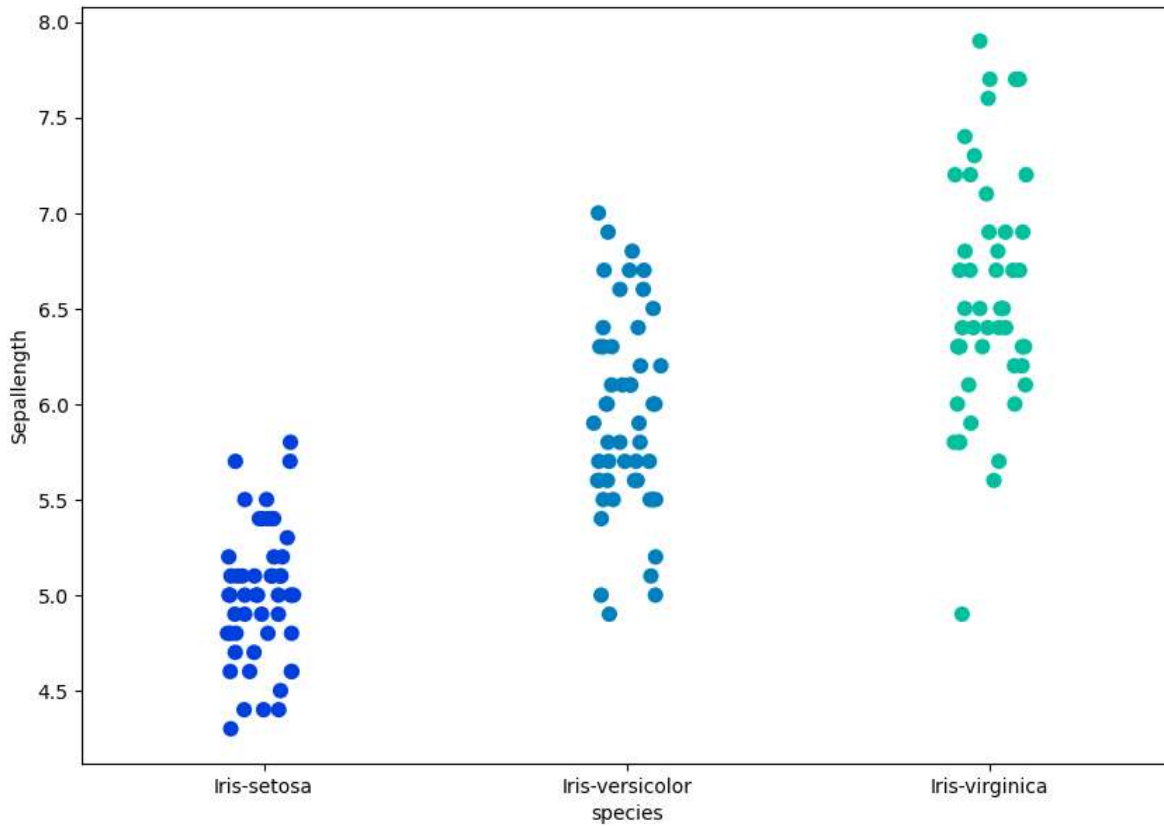
Out[42]:

```
array([[<Axes: title={'center': 'Id'}, xlabel='[species] '>,
      <Axes: title={'center': 'Petallength'}, xlabel='[species] '>,
      <Axes: title={'center': 'Petalwidth'}, xlabel='[species] '>,
      <Axes: title={'center': 'Sepallength'}, xlabel='[species] '>,
      <Axes: title={'center': 'Seplawidth'}, xlabel='[species] '>,
      <Axes: >]], dtype=object)
```



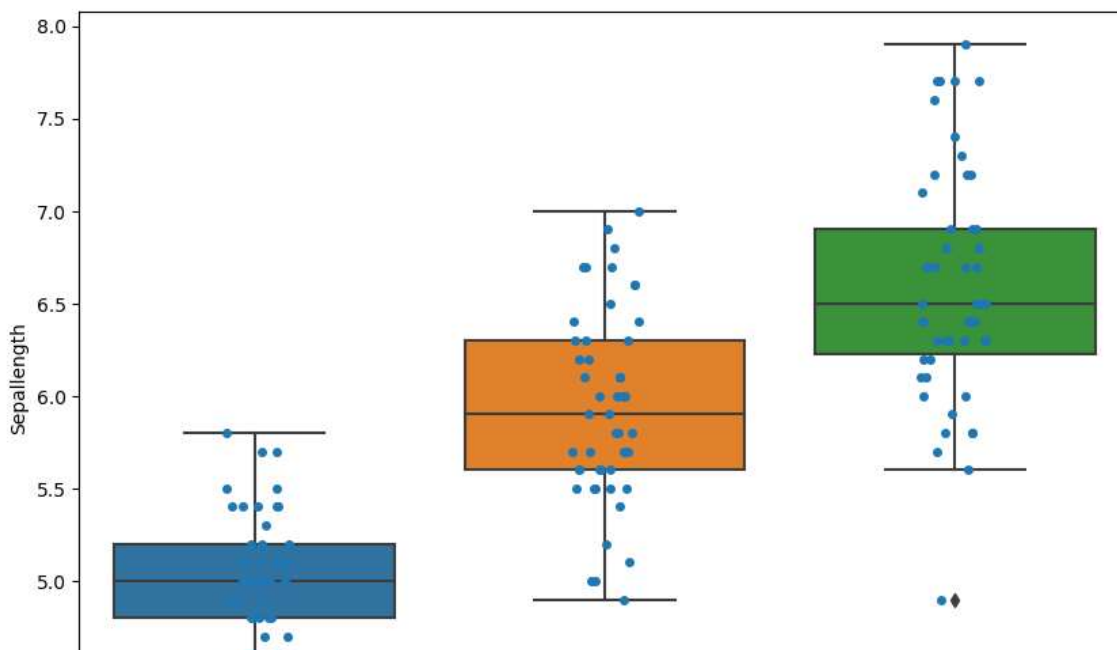
In [43]:

```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.stripplot(x='species',y='Sepallength',data=flowers,jitter=True,edgecolor='gray',size=
```



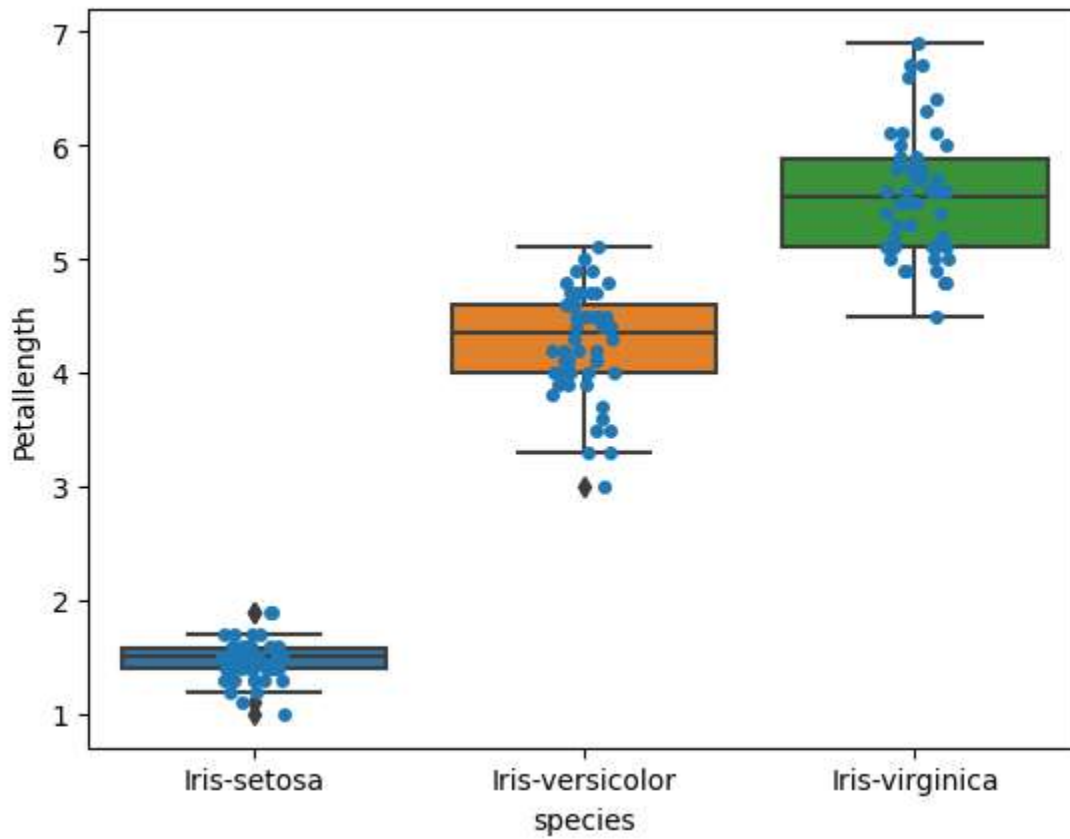
In [44]:

```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.boxplot(x='species',y='Sepallength',data=flowers)
fig=sns.stripplot(x='species',y='Sepallength',data=flowers,jitter=True,edgecolor='gray')
```



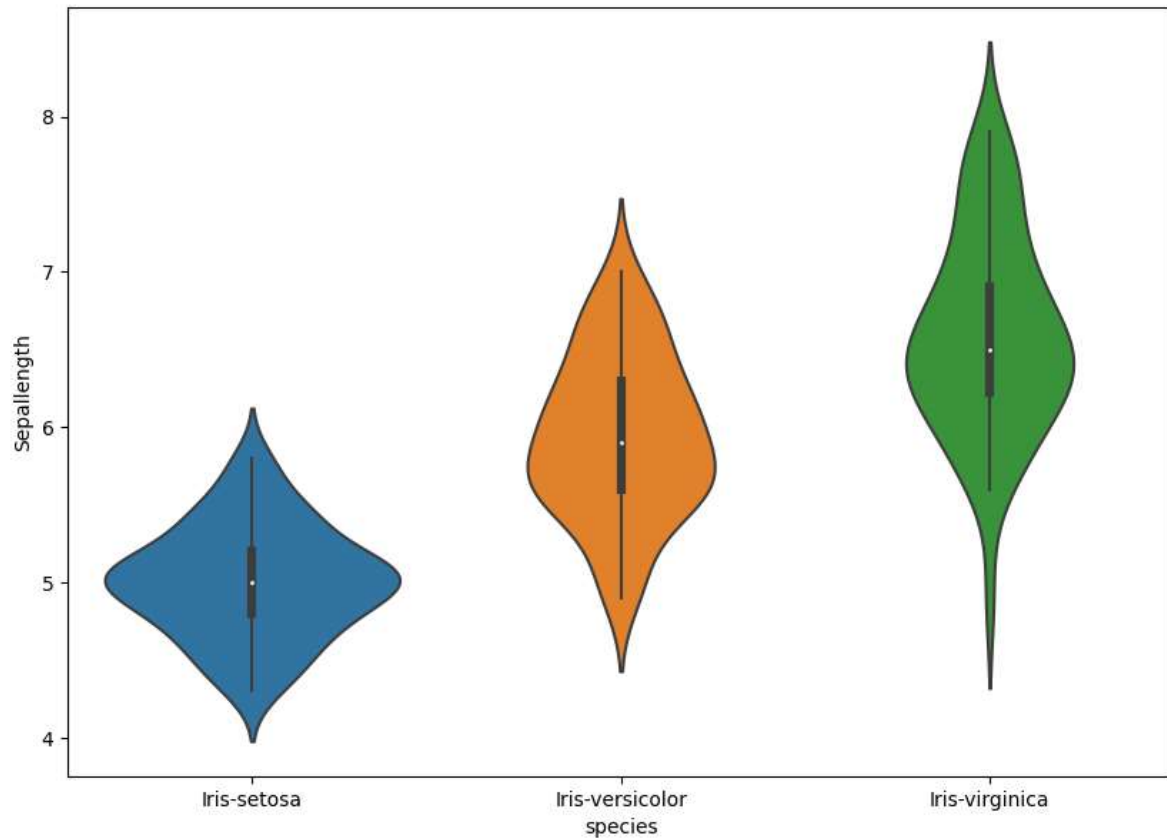
In [67]:

```
ax= sns.boxplot(x="species", y="Petallength", data=flowers)
ax= sns.stripplot(x="species", y="Petallength", data=flowers, jitter=True, edgecolor="gray")
plt.show()
```



In [46]:

```
fig=plt.gcf()
fig.set_size_inches(10,7)
fig=sns.violinplot(x='species',y='Sepallength',data=flowers)
```

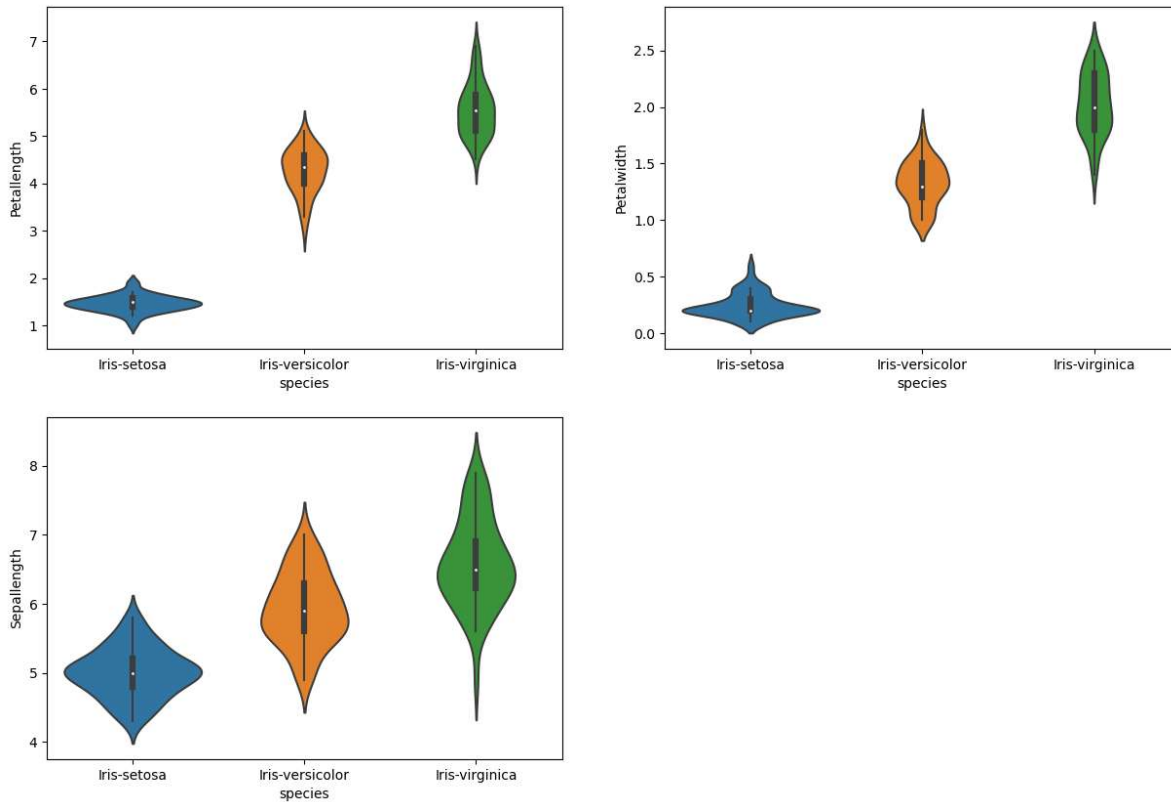


In [49]:

```
plt.figure(figsize=(15,10))
plt.subplot(2,2,1)
sns.violinplot(x='species',y='Petallength',data=flowers)
plt.subplot(2,2,2)
sns.violinplot(x='species',y='Petalwidth',data=flowers)
plt.subplot(2,2,3)
sns.violinplot(x='species',y='Sepallength',data=flowers)
```

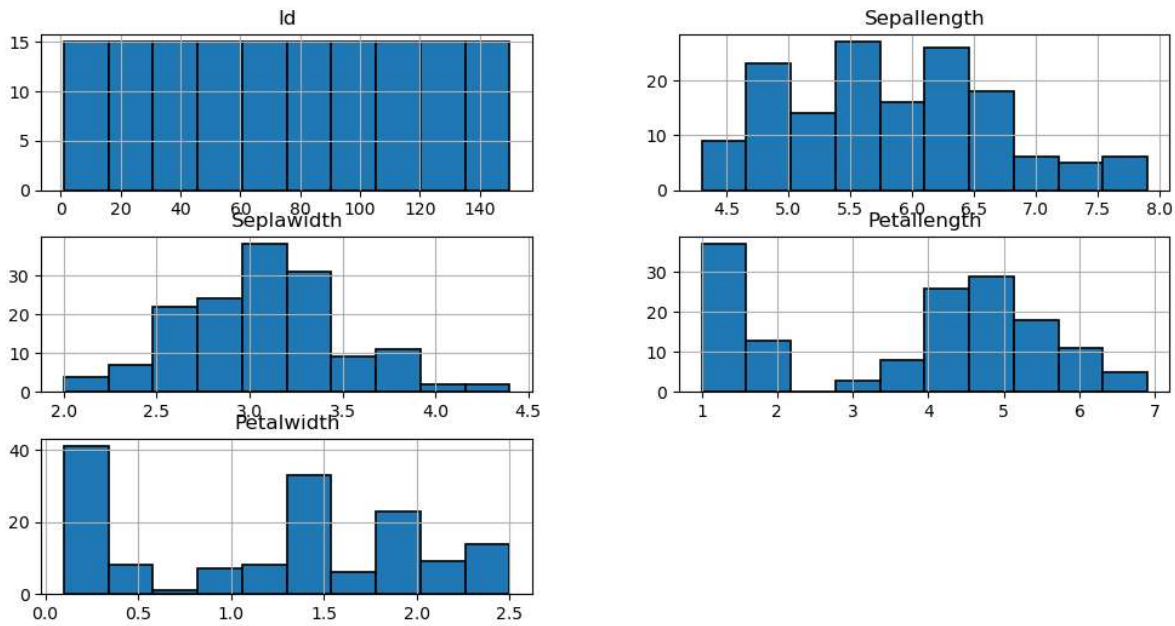
Out[49]:

<Axes: xlabel='species', ylabel='Sepallength'>



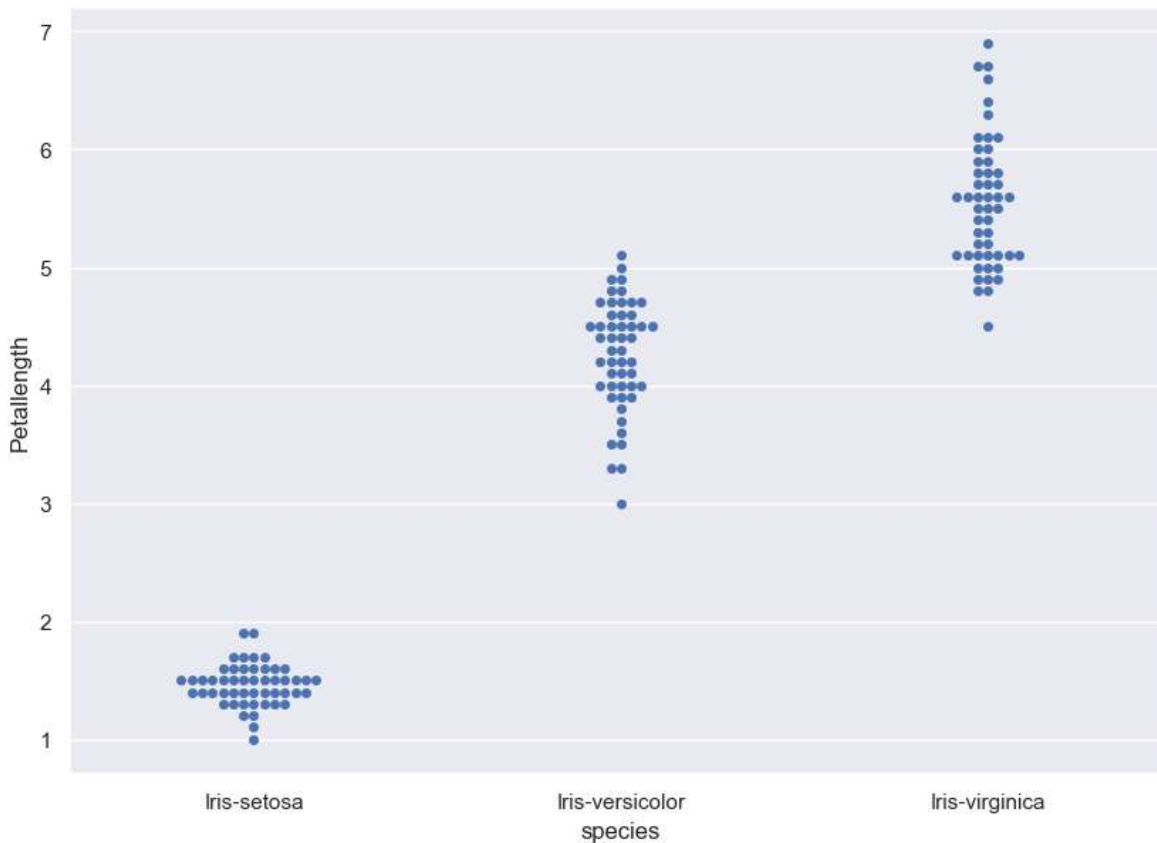
In [68]:

```
flowers.hist(edgecolor='black', linewidth=1.2)
fig=plt.gcf()
fig.set_size_inches(12,6)
```



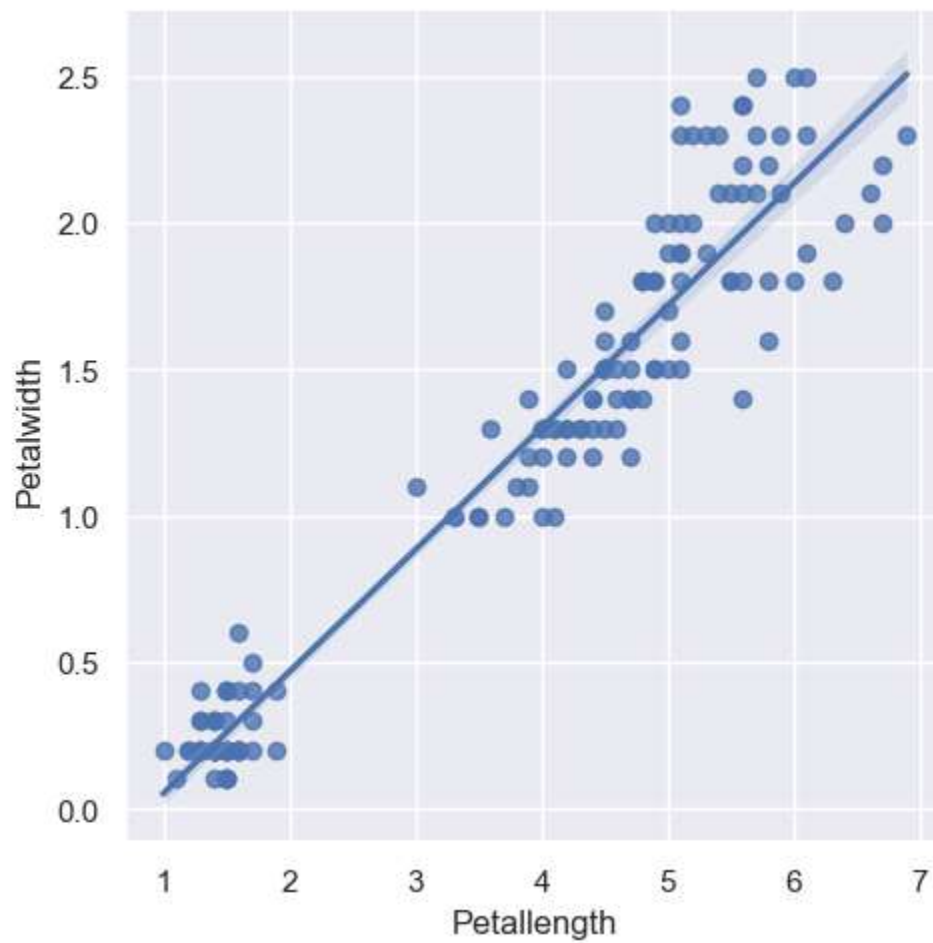
In [69]:

```
sns.set(style="darkgrid")
fig=plt.gcf()
fig.set_size_inches(10,7)
fig = sns.swarmplot(x="species", y="Petallength", data=flowers)
```



In [70]:

```
fig=sns.lmplot(x="Petallength", y="Petalwidth",data=flowers)
```



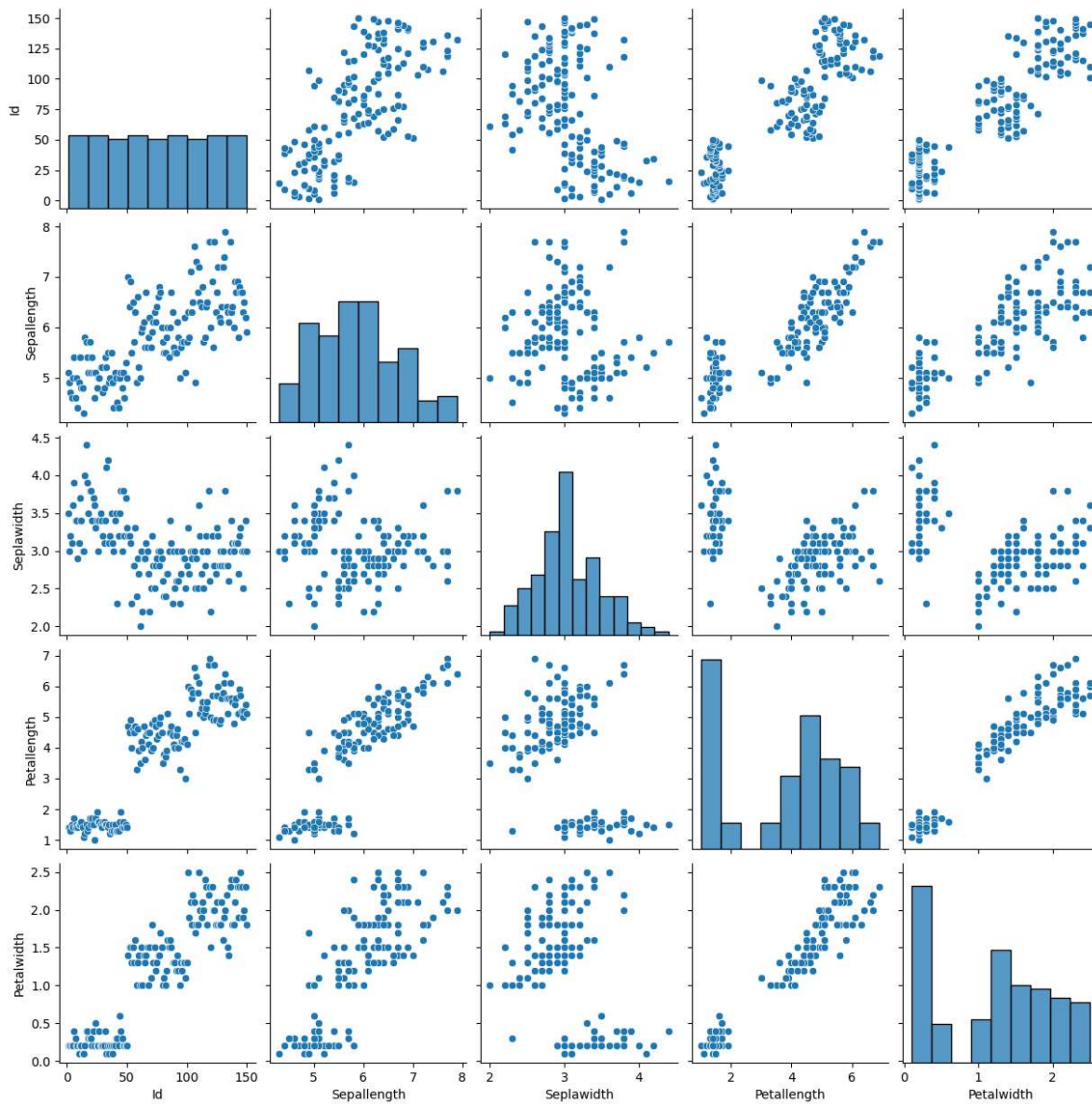


In [50]:

```
sns.pairplot(data=flowers,kind='scatter')
```

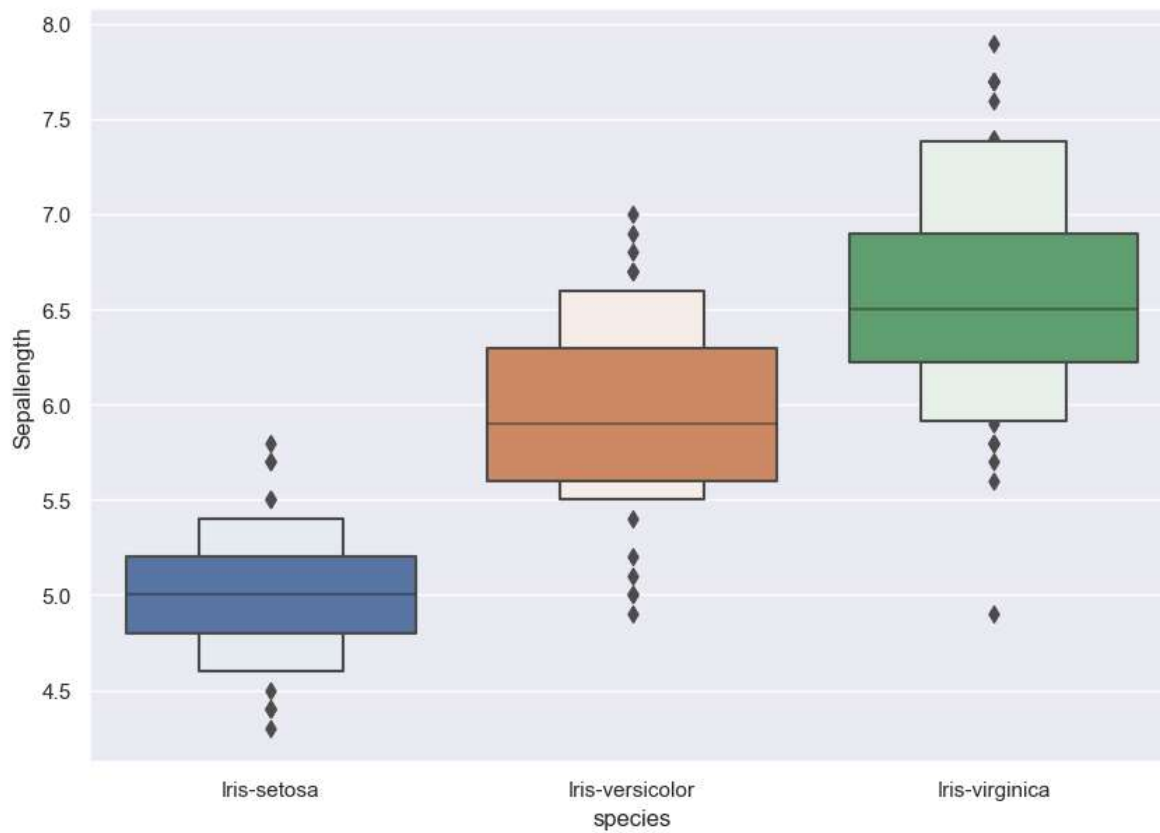
Out[50]:

<seaborn.axisgrid.PairGrid at 0x1aeced3fd30>



In [76]:

```
fig=plt.gcf()  
fig.set_size_inches(10,7)  
fig=sns.boxenplot(x='species',y='Sepallength',data=flowers)
```

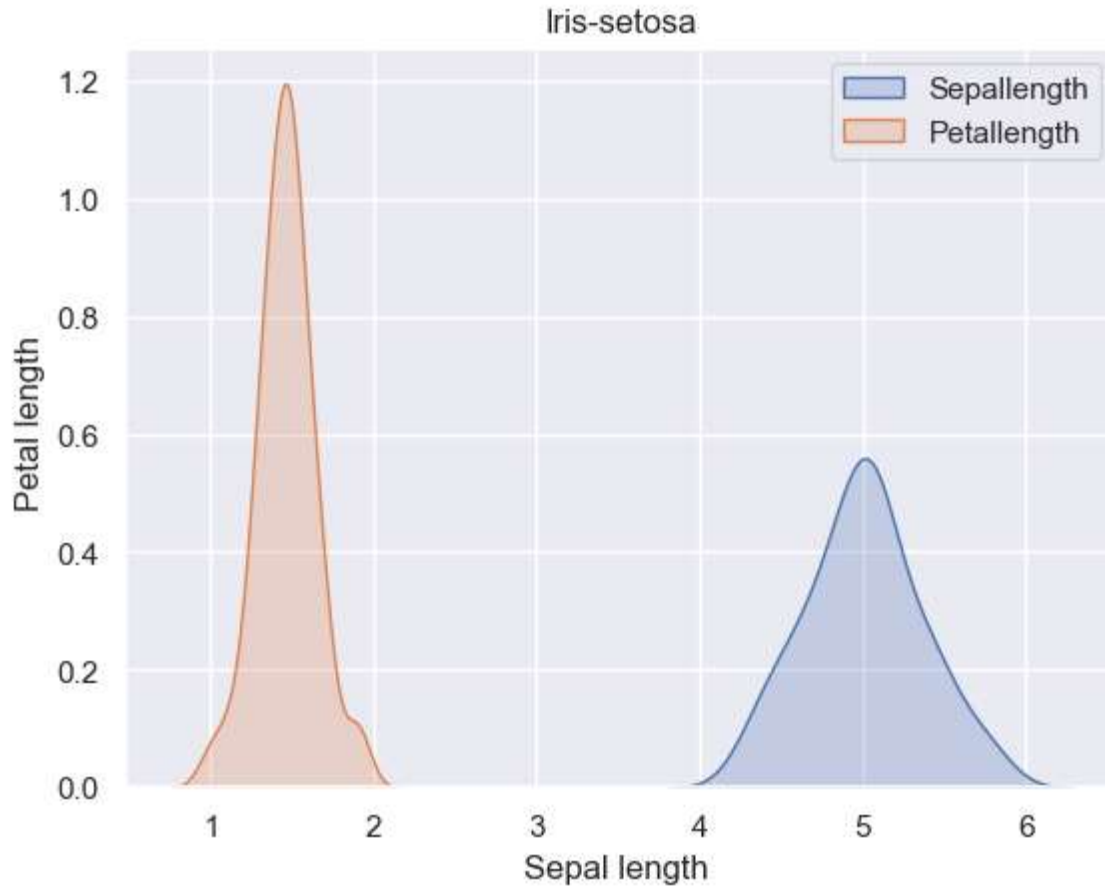


In [81]:

```
sub=flowers[flowers['species']=='Iris-setosa']  
sns.kdeplot(data=sub[['Sepallength','Petallength']], shade=True, shade_lowest=False)  
plt.title('Iris-setosa')  
plt.xlabel('Sepal length ')  
plt.ylabel('Petal length ')
```

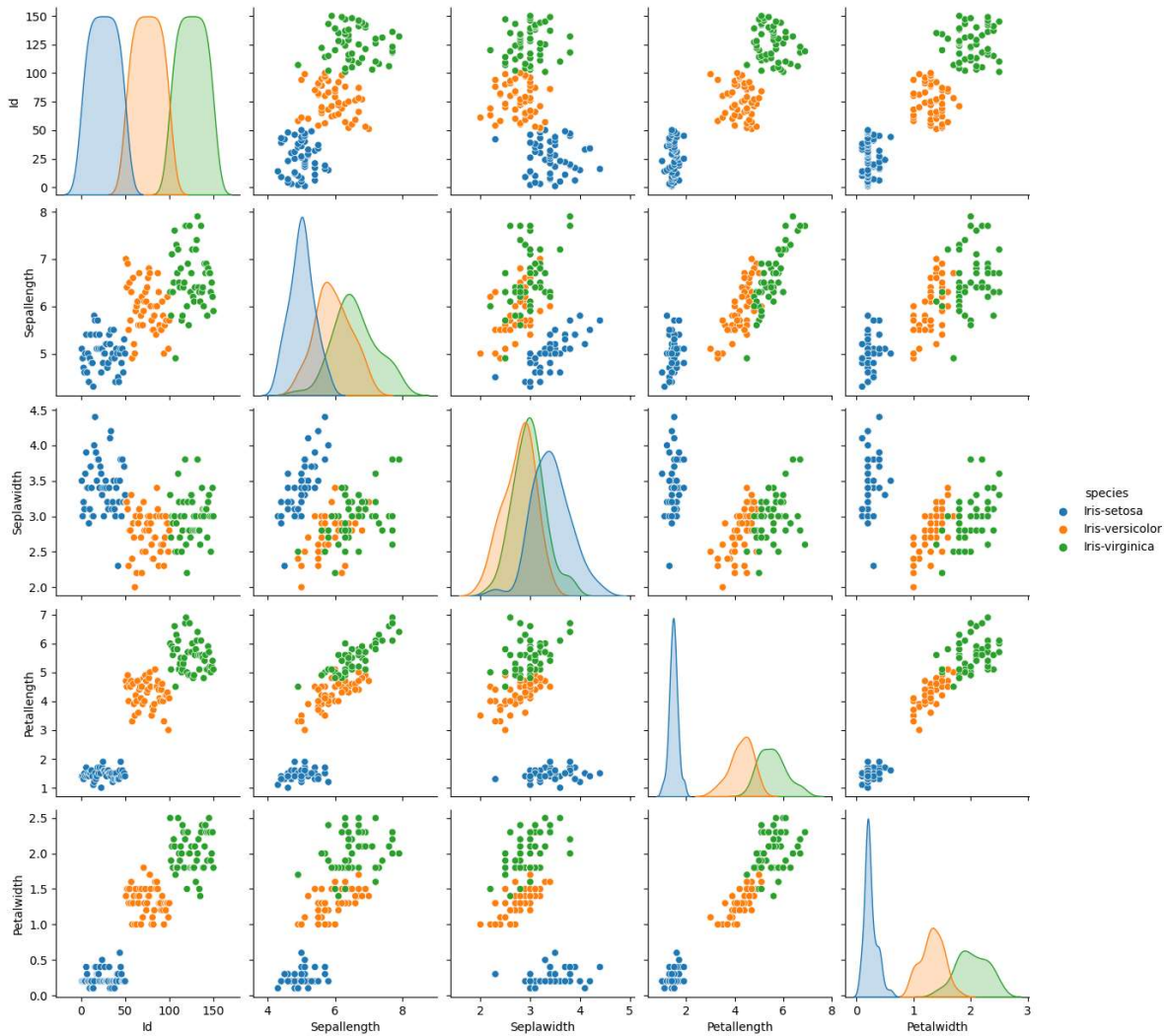
Out[81]:

Text(0, 0.5, 'Petal length ')



In [51]:

```
sns.pairplot(flowers,hue='species');
```



In [53]:

```
flowers.plot.area(y=['Sepallength','Petallength','Petalwidth'],alpha=0.4,figsize=(12, 6));
```



In [54]:

```
sns.distplot(flowers['Sepallength'],kde=True,bins=20);
```

