In [11]:
```
import numpy as np
import matplotlib.pyplot as plt
from PIL import Image
img=Image.open(r'C:\Users\sss\Downloads\elephant.jpg')
img
```

Out[11]:

In [12]:
```
type(img)
```

Out[12]:
```
PIL.JpegImagePlugin.JpegImageFile
```

In [13]:
```
img_arr=np.asarray(img)
img_arr
```

Out[13]:
```
array([[[148, 156, 115],
        [139, 147, 106],
        [126, 134,  93],
        ...,
        [139, 155,  92],
        [135, 151,  88],
        [130, 146,  83]],

       [[146, 154, 113],
        [138, 146, 105],
        [128, 136,  95],
        ...,
        [139, 155,  92],
        [137, 153,  90],
        [133, 149,  86]],

       [[144, 152, 111],
        [138, 146, 105],
        [131, 139,  98],
        ...,
        [146, 160,  98],
        [147, 161,  99],
        [145, 159,  97]],

       ...,

       [[206, 220,  85],
        [203, 217,  80],
        [199, 213,  74],
        ...,
        [203, 223,  28],
        [207, 228,  37],
        [207, 222,  77]],

       [[205, 221,  88],
        [205, 220,  91],
        [204, 219,  90],
        ...,
        [208, 229,   2],
        [209, 230,  11],
        [208, 224,  56]],

       [[202, 219,  81],
        [206, 222,  90],
        [209, 224,  97],
        ...,
        [208, 231,   0],
        [207, 230,   0],
        [210, 223,  45]]], shape=(408, 612, 3), dtype=uint8)
```

In [15]:
```
type(img_arr)
```

Out[15]:
```
numpy.ndarray
```

In [16]:
```
img_arr.shape
```

Out[16]:
```
(408, 612, 3)
```

In [17]:
```
plt.imshow(img_arr)
```

Out[17]:
```
<matplotlib.image.AxesImage at 0x1ecc0d727b0>
```

In [22]:
```
red_ele=img_arr.copy()
red_ele
```

Out[22]:
```
array([[[148, 156, 115],
        [139, 147, 106],
        [126, 134,  93],
        ...,
        [139, 155,  92],
        [135, 151,  88],
        [130, 146,  83]],

       [[146, 154, 113],
        [138, 146, 105],
        [128, 136,  95],
        ...,
        [139, 155,  92],
        [137, 153,  90],
        [133, 149,  86]],

       [[144, 152, 111],
        [138, 146, 105],
        [131, 139,  98],
        ...,
        [146, 160,  98],
        [147, 161,  99],
        [145, 159,  97]],

       ...,

       [[206, 220,  85],
        [203, 217,  80],
        [199, 213,  74],
        ...,
        [203, 223,  28],
        [207, 228,  37],
        [207, 222,  77]],

       [[205, 221,  88],
        [205, 220,  91],
        [204, 219,  90],
        ...,
        [208, 229,   2],
        [209, 230,  11],
        [208, 224,  56]],

       [[202, 219,  81],
        [206, 222,  90],
        [209, 224,  97],
        ...,
        [208, 231,   0],
        [207, 230,   0],
        [210, 223,  45]]], shape=(408, 612, 3), dtype=uint8)
```

In [24]:
```
red_ele==img_arr
```

Out[24]:
```
array([[[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       ...,

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]]], shape=(408, 612, 3))
```

In [25]:
```
plt.imshow(img_arr)
```

Out[25]:
```
<matplotlib.image.AxesImage at 0x1ecbfa0ead0>
```

In [26]:
```
red_ele.shape
```

Out[26]: (408, 612, 3)

In [27]:
```
plt.imshow(red_ele[:,:,0])
```

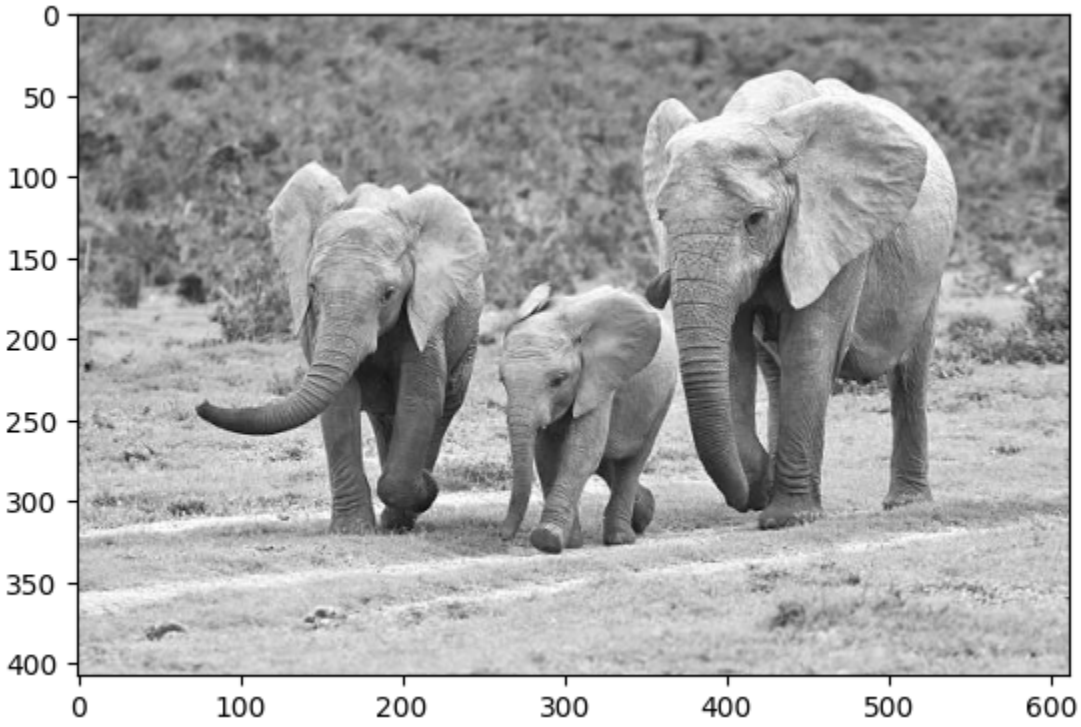
Out[27]: <matplotlib.image.AxesImage at 0x1ecbfa97250>

In [28]:
```
red_ele[:,:,0]
```

Out[28]:
```
array([[148, 139, 126, ..., 139, 135, 130],
       [146, 138, 128, ..., 139, 137, 133],
       [144, 138, 131, ..., 146, 147, 145],
       ...,
       [206, 203, 199, ..., 203, 207, 207],
       [205, 205, 204, ..., 208, 209, 208],
       [202, 206, 209, ..., 208, 207, 210]], shape=(408, 612), dtype=uint8)
```

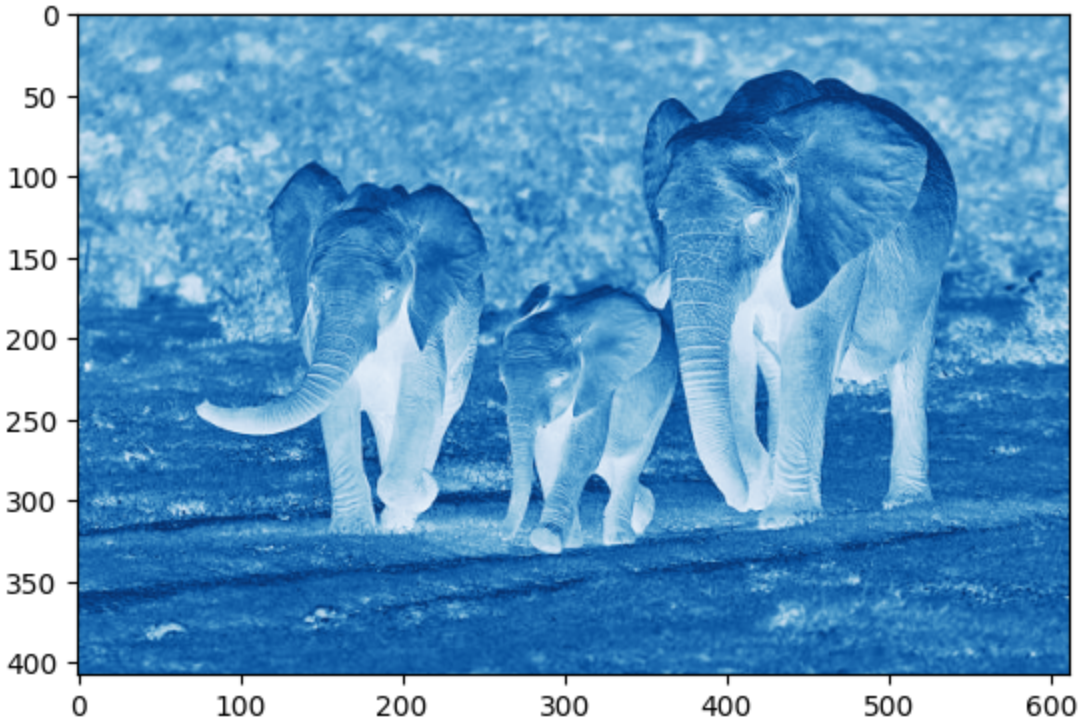
In [29]:
```
plt.imshow(red_ele[:,:,0], cmap='gray') # Displaying the red channel in graysc
```

Out[29]:
```
<matplotlib.image.AxesImage at 0x1ecbf916e90>
```



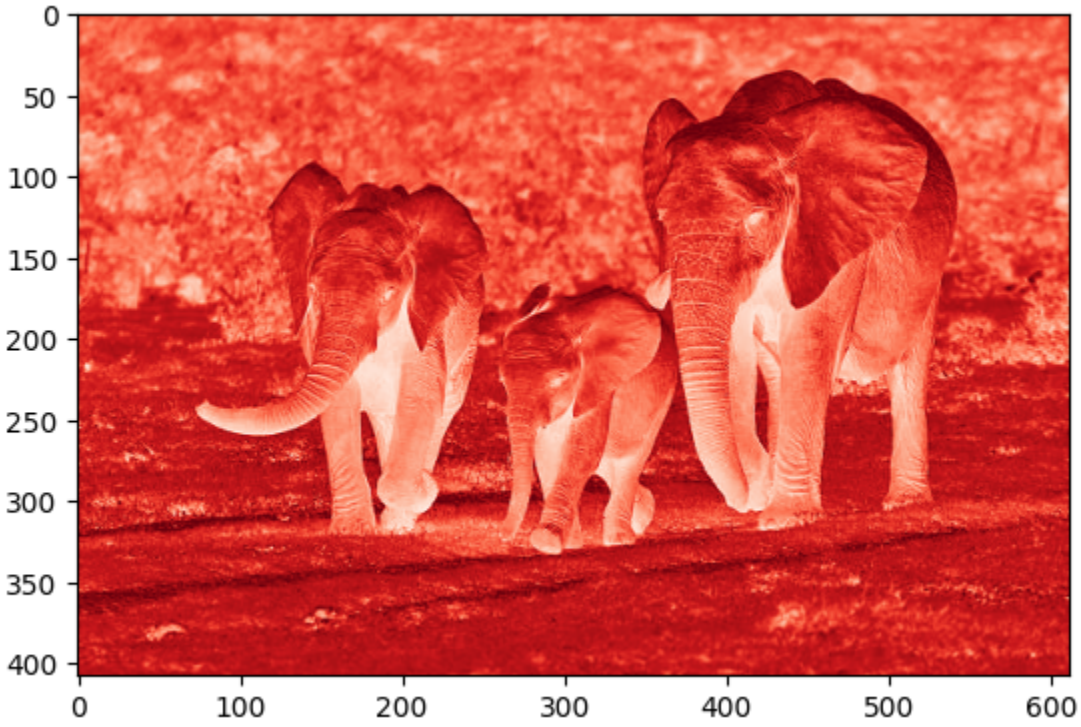
In [30]:
```
plt.imshow(red_ele[:,:,0], cmap='Blues') # Displaying the red channel in blue
```

Out[30]:
```
<matplotlib.image.AxesImage at 0x1ecbf99ac10>
```



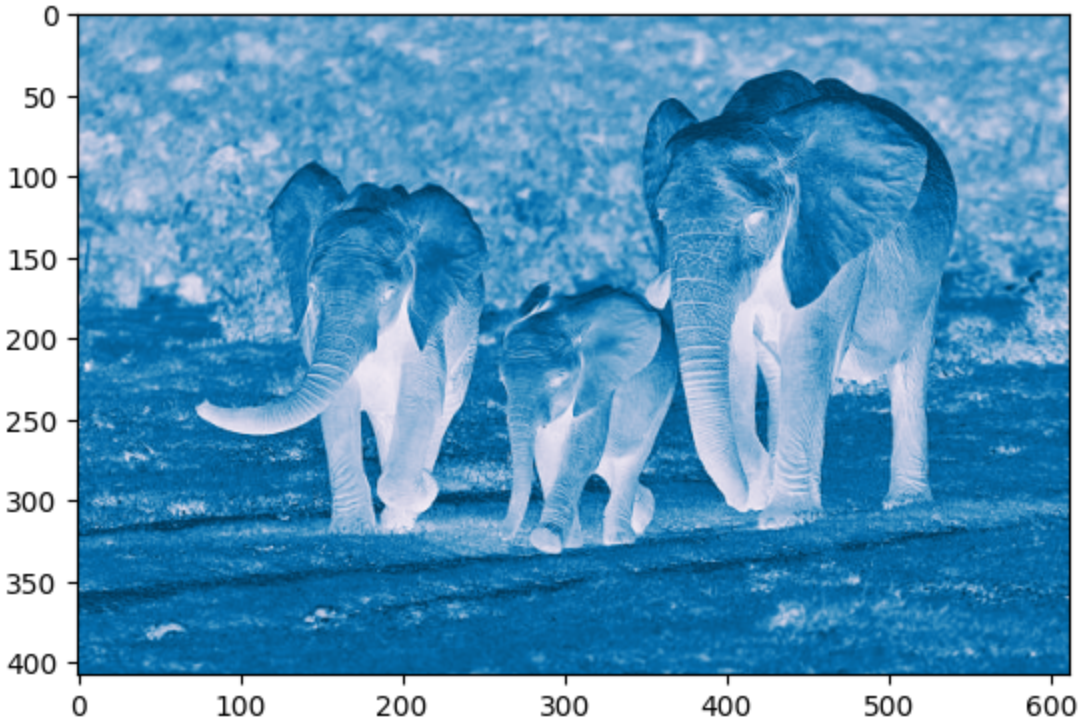
In [31]:
```
plt.imshow(red_ele[:,:,0], cmap='Reds')
```

Out[31]: <matplotlib.image.AxesImage at 0x1ecbf61a850>



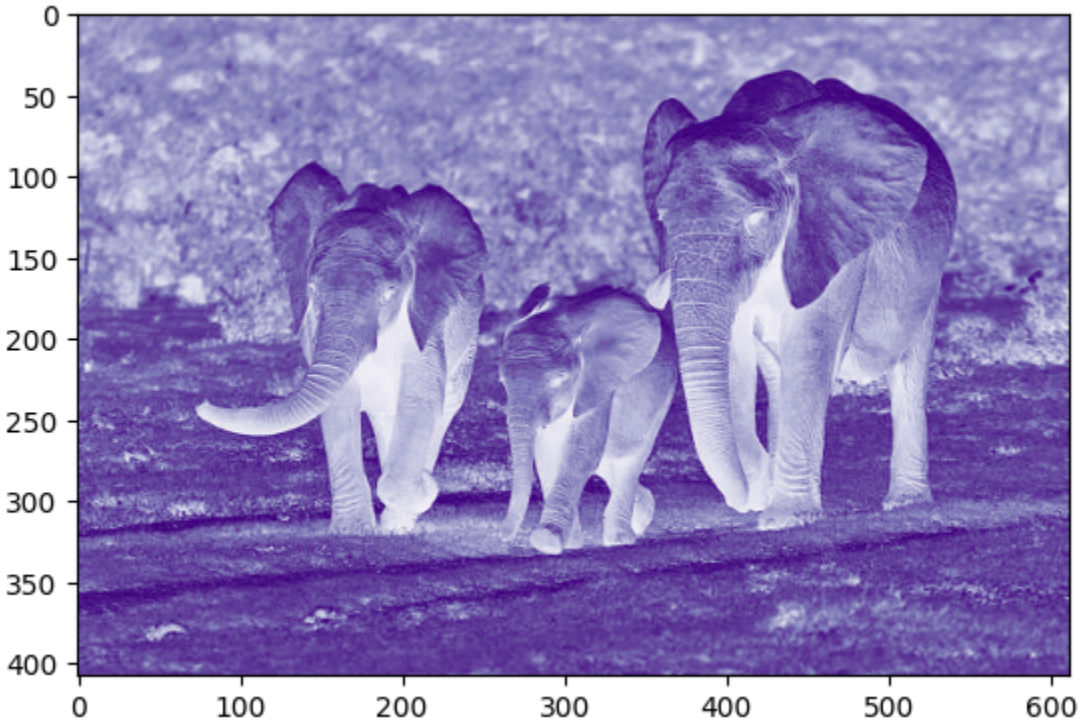
In [32]:
```
plt.imshow(red_ele[:,:,0], cmap='PuBu')
```

Out[32]: <matplotlib.image.AxesImage at 0x1ecbf67a5d0>



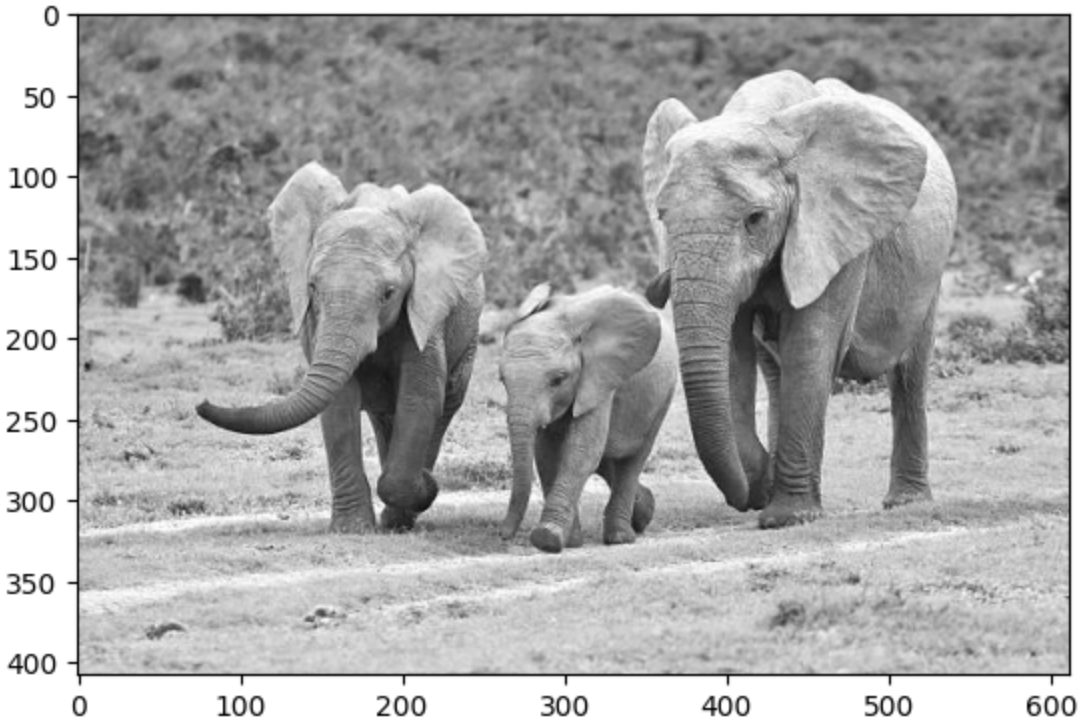
In [33]:
```
plt.imshow(red_ele[:,:,0], cmap='Purples') # Displaying the red channel in pur
```

Out[33]: <matplotlib.image.AxesImage at 0x1ecbf6da350>



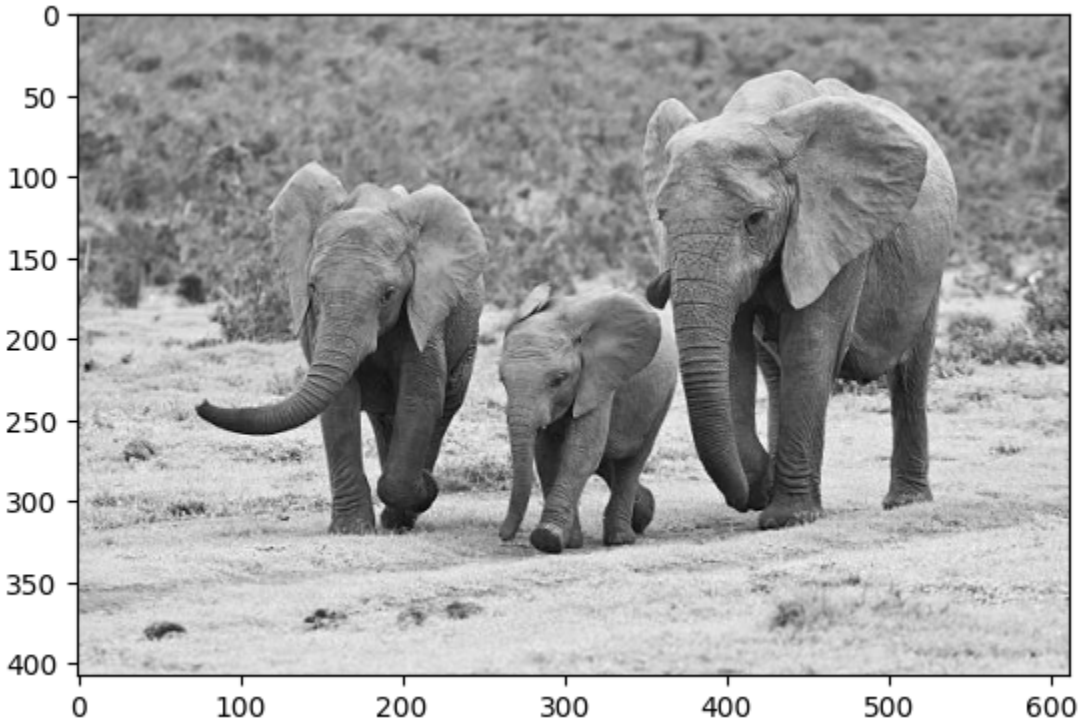
In [34]:
```
plt.imshow(red_ele[:,:,0], cmap='gray')
```

Out[34]: <matplotlib.image.AxesImage at 0x1ecc0079f90>



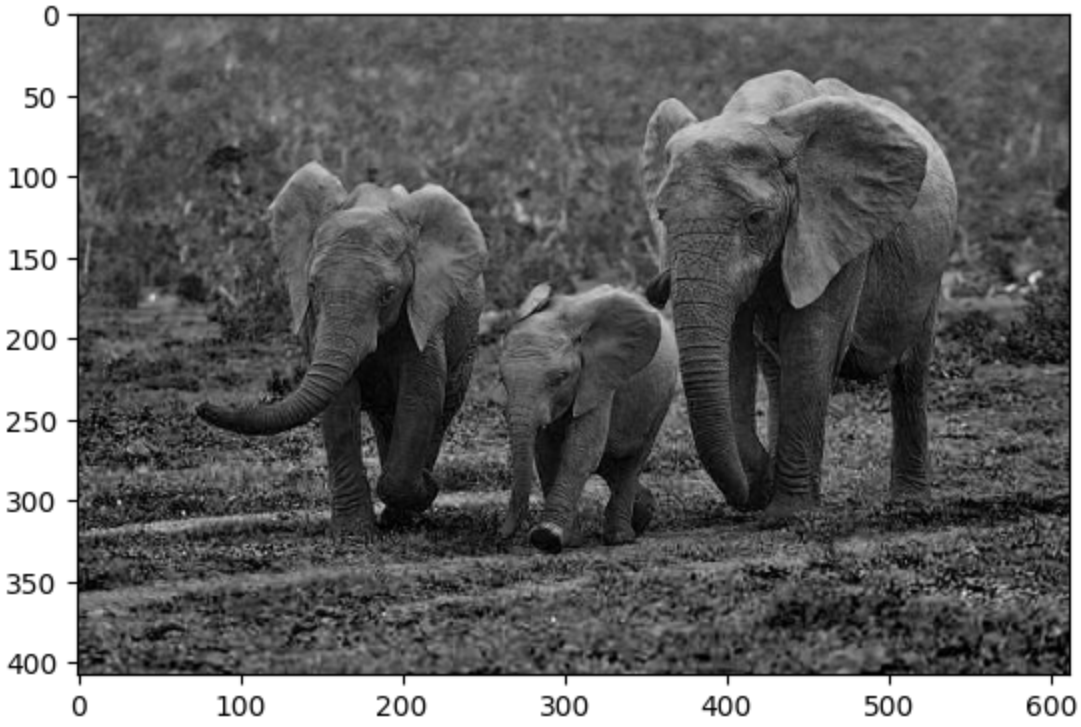
In [35]:
```
plt.imshow(red_ele[:,:,1], cmap='gray')
```

Out[35]: <matplotlib.image.AxesImage at 0x1ecc0101bd0>



In [ ]:
```
plt.imshow(red_ele[:,:,2], cmap='gray')
```

Out[ ]: <matplotlib.image.AxesImage at 0x1ecbfb51810>



In [37]:
```
red_ele[:,:,0]
```

Out[37]:
```
array([[148, 139, 126, ..., 139, 135, 130],
       [146, 138, 128, ..., 139, 137, 133],
       [144, 138, 131, ..., 146, 147, 145],
       ...,
       [206, 203, 199, ..., 203, 207, 207],
       [205, 205, 204, ..., 208, 209, 208],
       [202, 206, 209, ..., 208, 207, 210]], shape=(408, 612), dtype=uint8)
```

In [38]:
```
red_ele[:,:,1]
```

Out[38]:
```
array([[156, 147, 134, ..., 155, 151, 146],
       [154, 146, 136, ..., 155, 153, 149],
       [152, 146, 139, ..., 160, 161, 159],
       ...,
       [220, 217, 213, ..., 223, 228, 222],
       [221, 220, 219, ..., 229, 230, 224],
       [219, 222, 224, ..., 231, 230, 223]], shape=(408, 612), dtype=uint8)
```

In [39]:
```
red_ele
```

Out[39]:
```
array([[[148, 156, 115],
        [139, 147, 106],
        [126, 134,  93],
        ...,
        [139, 155,  92],
        [135, 151,  88],
        [130, 146,  83]],

       [[146, 154, 113],
        [138, 146, 105],
        [128, 136,  95],
        ...,
        [139, 155,  92],
        [137, 153,  90],
        [133, 149,  86]],

       [[144, 152, 111],
        [138, 146, 105],
        [131, 139,  98],
        ...,
        [146, 160,  98],
        [147, 161,  99],
        [145, 159,  97]],

       ...,

       [[206, 220,  85],
        [203, 217,  80],
        [199, 213,  74],
        ...,
        [203, 223,  28],
        [207, 228,  37],
        [207, 222,  77]],

       [[205, 221,  88],
        [205, 220,  91],
        [204, 219,  90],
        ...,
        [208, 229,   2],
        [209, 230,  11],
        [208, 224,  56]],

       [[202, 219,  81],
        [206, 222,  90],
        [209, 224,  97],
        ...,
        [208, 231,   0],
        [207, 230,   0],
        [210, 223,  45]]], shape=(408, 612, 3), dtype=uint8)
```