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## Section 1: 497 (497)

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### NORTHSTAR REAL ESTATE CAPITAL INCOME FUND

#### Supplement No. 3 dated August 1, 2018 to the Prospectus dated April 30, 2018

This Supplement No. 3 (this “Supplement”) contains information which amends, supplements or modifies certain information contained in the Prospectus of NorthStar Real Estate Capital Income Fund (the “Trust”), dated April 30, 2018, as supplemented and amended (the “Prospectus”). Capitalized terms used in this Supplement shall have the meanings ascribed to them in the Prospectus unless the context otherwise requires. The purpose of this Supplement is to disclose revisions related to the following:

- The addition of a new member of the Adviser's investment committee; and
- A modification to the Trust's determination of total assets for purposes of its borrowing policy.

*You should carefully consider the “Risk Factors” beginning on page 59 of the Prospectus before you decide to invest in the Trust's common shares.*

#### Investment Committee Member

*This Supplement supplements and amends the section “The Advisor—The Advisor” on page 34 by replacing the sixth sentence of the fourth paragraph in its entirety with the following:*

The Advisor's investment committee consists of Messrs. Richard B. Saltzman, Mark M. Hedstrom, Kevin P. Traenkle, Robert C. Gatenio, Sujan S. Patel, David Schwarz and William Hughes III.

*This Supplement supplements and amends the section “Risk Factors—Risks Related to the Trust and the Master Fund—The Advisor may not be successful, or there may be delays, in locating suitable investments, which could limit the Master Fund's ability to make distributions and lower the overall return on the Shares” on page 99 by replacing the first sentence of the first paragraph in its entirety with the following:*

The Master Fund will rely upon the Advisor or its affiliates, which will use Colony Capital's investment professionals, including Richard B. Saltzman, Mark M. Hedstrom, Kevin P. Traenkle, Robert C. Gatenio, Sujan S. Patel, David Schwarz and William Hughes III, to identify suitable investments.

*This Supplement supplements and amends the section “Portfolio Management—The Advisor—Investment Committee of the Advisor” on page 128 by replacing the second sentence of the first paragraph in its entirety with the following:*

The committee consists of Messrs. Saltzman, Hedstrom, Traenkle, Gatenio, Patel, Schwarz and Hughes.

*This Supplement supplements and amends the section “Portfolio Management—The Advisor—Investment Committee of the Advisor” on page 129 by including a new paragraph six as follows:*

**William Hughes III.** William Hughes III is Managing Director, Investment Management at Colony Capital. Mr. Hughes is responsible for liquid investment strategies. He is the Portfolio Manager of the Colony Capital Focus Fund and the firm's Commercial Real Estate Securities portfolio. Prior to joining Colony Capital in 2017, Mr. Hughes managed the Focus Fund within Kayne Anderson. Prior to that, Mr. Hughes was a portfolio manager for the Condorcet Opportunity Fund, an event driven hedge fund controlled by Societe Generale. Mr. Hughes has been engaged in value and event driven investing as an analyst and portfolio manager since 1998, and he previously managed similar strategies at Allen & Company and Pequot Capital Management. He began his career as an investment banking analyst at Goldman, Sachs & Co. in the financial institutions group. Mr. Hughes is an honors graduate of the University of Chicago with a concentration in economics.

This Supplement supplements and amends the section “Portfolio Management—Portfolio Managers—Other Accounts Managed by the Portfolio Managers” on page 130 by adding the following line items to the table:

	Number of Accounts	Assets of Accounts	Number of Accounts Subject to a Performance Fee	Assets Subject to a Performance Fee
<b>William Hughes III<sup>(2)</sup></b>				
Registered Investment Companies	5	\$ 32,771	5	\$ 32,771
Pooled Investment Vehicles Other Than Registered Investment Companies	2	\$ 162,851	2	\$ 162,851
Other Accounts	0	-	0	-

(2) The table identifies the assets as of December 31, 2017 for the accounts currently managed by Mr. Hughes, who was appointed a member of the Advisor’s investment committee during the third quarter of 2018.

This Supplement supplements and amends the section “Portfolio Management—Securities Ownership of Portfolio Managers” on page 131 by adding the following line items to the table:

Name of Investment Committee Member	Dollar Range of Equity Securities in the Trust(1)
William Hughes III <sup>(3)</sup>	None

(3) Mr. Hughes was appointed a member of the Advisor’s investment committee during the third quarter of 2018.

This Supplement supplements and amends the section “Conflicts of Interest—Affiliates’ Interests in Colony Capital and Its Affiliates—Allocation of Affiliates’ Time” on page 142 by replacing the first sentence of the first paragraph in its entirety with the following:

The Master Fund relies on Colony Capital’s key executive officers and employees who act on behalf of the Advisor, including Messrs. Barrack, Saltzman, Tangen, Hedstrom, Traenkle, Gatenio, Patel, Sanders, Redington, Schwarz, Hughes and Saracino for the day-to-day operation of the Master Fund’s business.

#### Borrowing Policy

This Supplement supplements and amends the section “Investment Objectives and Strategies—Borrowing Policy” on page 56 by deleting the disclosure in the first paragraph as indicated below:

Each of the Trust and the Master Fund is permitted to borrow to make investments, subject to limitations imposed by the 1940 Act. To the extent that the Trust or the Master Fund determines it is appropriate to borrow funds to make investments, such as through secured credit facilities and issuing debt securities or other forms of leverage, the costs associated with such borrowing will be indirectly borne by the Trust’s and the Master Fund’s Shareholders. The Trust and the Master Fund may use leverage opportunistically and may choose to increase or decrease its leverage, or use different types or combinations of leveraging instruments, at any time based on the Trust’s or Master Fund’s assessment of market conditions and the investment environment. The 1940 Act generally limits the extent to which the Trust and the Master Fund may utilize borrowings and “uncovered” transactions that, together with any other senior securities representing indebtedness, to 33 1/3% of the Trust’s and the Master Fund’s total assets at the time utilized. In addition, the 1940 Act limits the extent to which the Trust and the Master Fund may issue preferred shares to 50% of the Master Fund’s total assets (less the Master Fund’s obligations under senior securities representing indebtedness). Based on current market conditions, the Trust and Master Fund do not intend for the use of derivative instruments to be a principal investment strategy; however, the Trust and the Master Fund may use derivative instruments and to the extent the Trust and Master Fund use such instruments, “covered” reverse repurchase agreements and other derivative transactions or short selling will not be counted against the foregoing limits under the 1940 Act. ~~The assets used to “cover” will not be counted as part of the Trust and the Master Fund’s total assets for purposes of the 33 1/3% and 50% limits.~~ Shareholders bear all costs and expenses incurred by the Trust either directly or indirectly, including such costs and expenses associated with any leverage incurred by the Trust.